MAY 17 1947

Textile Industries

MAY, 1947

formerly COTTON Textile Industries

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PER. SECT. 23

Let's conjugate in chorus—

What men make, makes profit. It is earned in sweat—of the mind as well as of the body. Profit is the excess over what is required for the necessities of life.

It is as simple as that.

Profit is not earned alone. It is achieved by cooperation and is shared by all who participate in making or serving.

This is a truth that marches with man out of the ages into his ultimate future. It is as true for the doctor, the lawyer, the farmer, the engineer as for the enterprises of industry and commerce. The doctor increases the span of healthy life with profit both to himself and his patient.

What one man does or makes earns him profit in proportion as he benefits his fellow men.

For the engineer, this sharing of profit or gains is a far-spreading service. It flows from his studies and surveys, through his plans, across his drawing board into the structures where men work in safety, live in comfort, learn, progress and so make more profit until the chain of gain comes back to you.

Engineers for 45 years . . . J. E. SIRRINE & CO.

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Volume 111 Number 5

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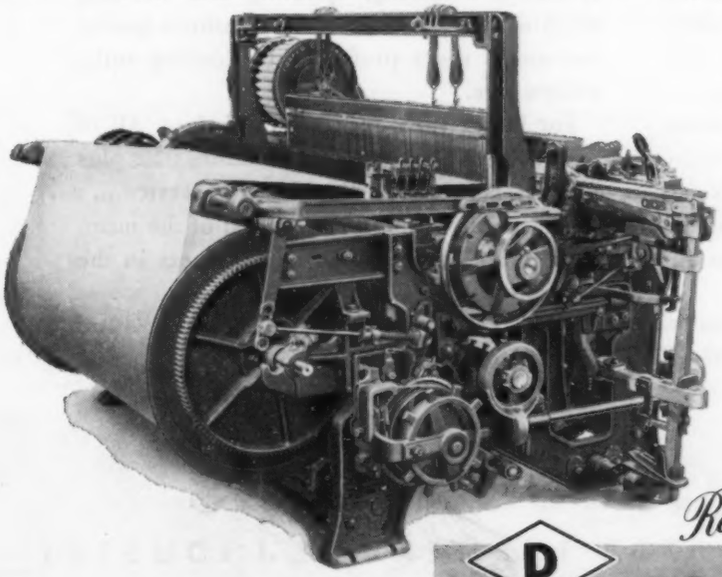
When you buy DRAPER LOOMS you are *Buying Production!*

You are buying a production tool—a loom that will produce more and better cloth at less cost.

There is no mystery about it. It is a simple basic fact of our economy. To stay in business—to meet competition successfully—to continue to pay high wages—to pay satisfactory dividends—you must have machines that produce more at less cost.

It makes no difference whether it is a shuttleless loom; a circular loom; an archless loom; a loom with or without electronic devices; a bobbin changer or a shuttle changer; you need and must have a machine that produces the kind of cloth you want at the lowest possible cost per yard.

Our present Super High Speed X-2 Model Looms meet these conditions. Their capacity to produce economically is well established. These looms are running consistently at 200 or more picks per minute under regular mill conditions. They are production machines weaving more and better cloth more economically.



Retaining leadership through research.

DRAPER CORPORATION
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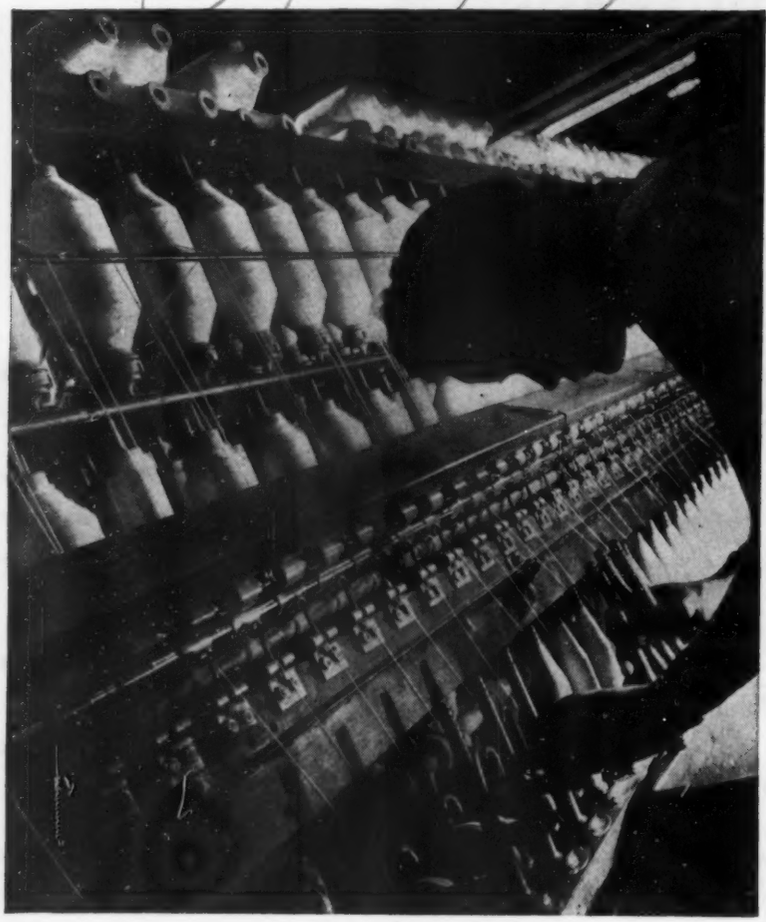
"SPIN WITH SPINDURA" AND YOU'LL SPIN BETTER YARN



THE HIGH resistance of *Texaco Spindura Oils* to oxidation, thickening and atomization assures less spindle vibration, less hunting and lagging, fewer ends down . . . a cleaner, finer yarn, more uniform in twist, smoother in finish.

In addition, *Spindura*-lubricated frames can carry heavier, firmer packages and operate efficiently at higher speeds. This means increased production of top-grade yarn.

Texaco Spindura Oils meet all spindle manufacturers' specifications for lubrication of spinning, throwing, spooling and twisting machines . . . and their always uniform quality has made them preferred by leading mills everywhere.

For better yarn, spin with *Spindura*. All of Texaco's famous textile lubricants . . . plus Texaco Lubrication Engineering Service . . . are available through the nearest of the more than 2500 Texaco distributing plants in the 48 States . . . or write:

The Texas Company, 135 East 42nd Street, New York 17, N. Y.

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FOR THE TEXTILE INDUSTRY

Tune in . . . TEXACO STAR THEATRE presents the NEW TONY MARTIN SHOW every Sunday night. See newspaper for time and station.

MAY, 1947

Textile Industries

Volume 111, Number 5

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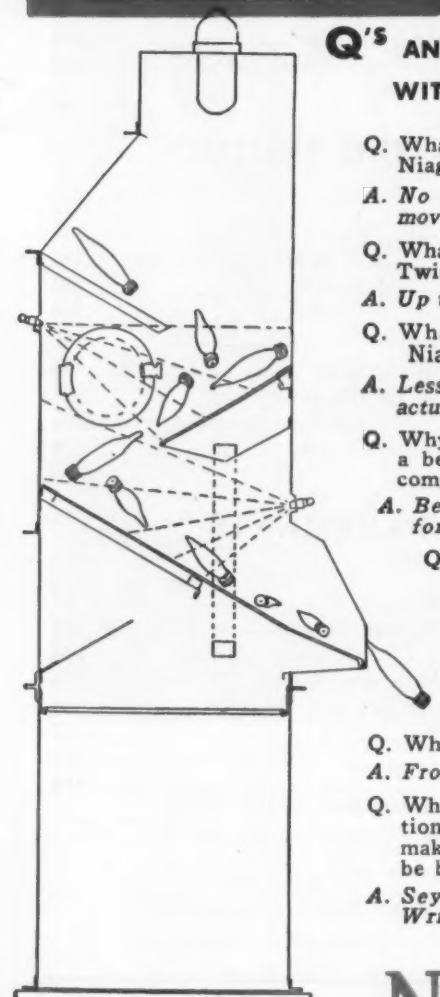

Q's AND A's ON CONDITIONING YARN WITH A NIAGARA TWIST-SETTER

Q. What is the outstanding feature of the Niagara Twist-Setter?

A. No apron to replace periodically. No moving parts except a pump.

Q. What is the capacity of a Niagara Twist-Setter?

A. Up to 3,000 lbs. per hour.

Q. What is the maintenance cost of a Niagara Twist-Setter?

A. Less than $5.00 per machine per year by actual records over 4 year period.

Q. Why does the Niagara Twist-Setter do a better job of setting the twist than competitive machines?

A. Because the Niagara gives a more uniform wetting of the bobbins.

Q. What feeding devices are available?

A. Several designs to suit individual mill requirements.

Q. What priorities, etc. are needed?

A. None.

Q. What delivery can be expected?

A. From three to six weeks.

Q. Where can the best yarn conditioning penetrants for use in any make yarn conditioning machine be bought?

A. Seydel-Woolley & Company — Write today for particulars.

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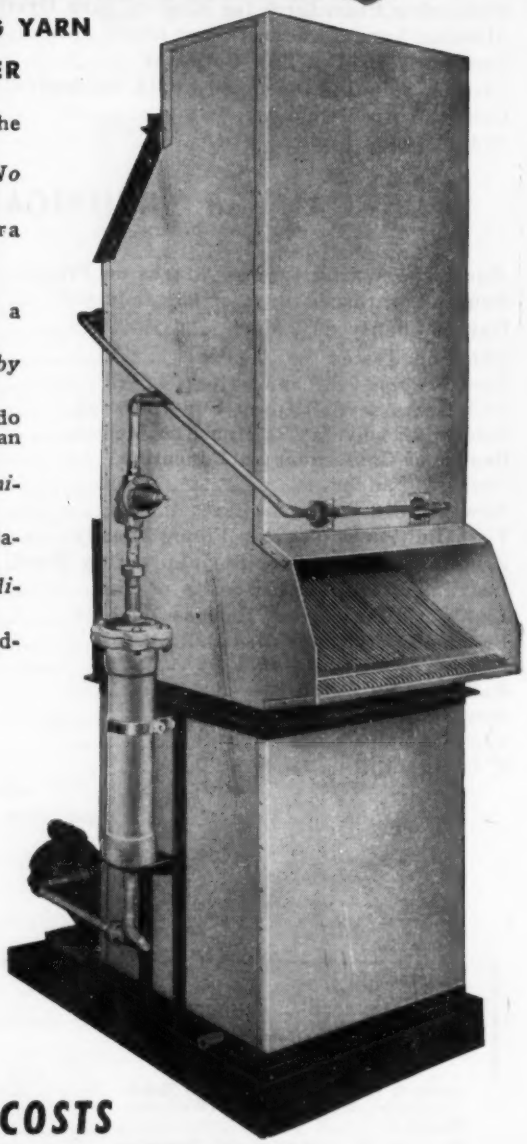

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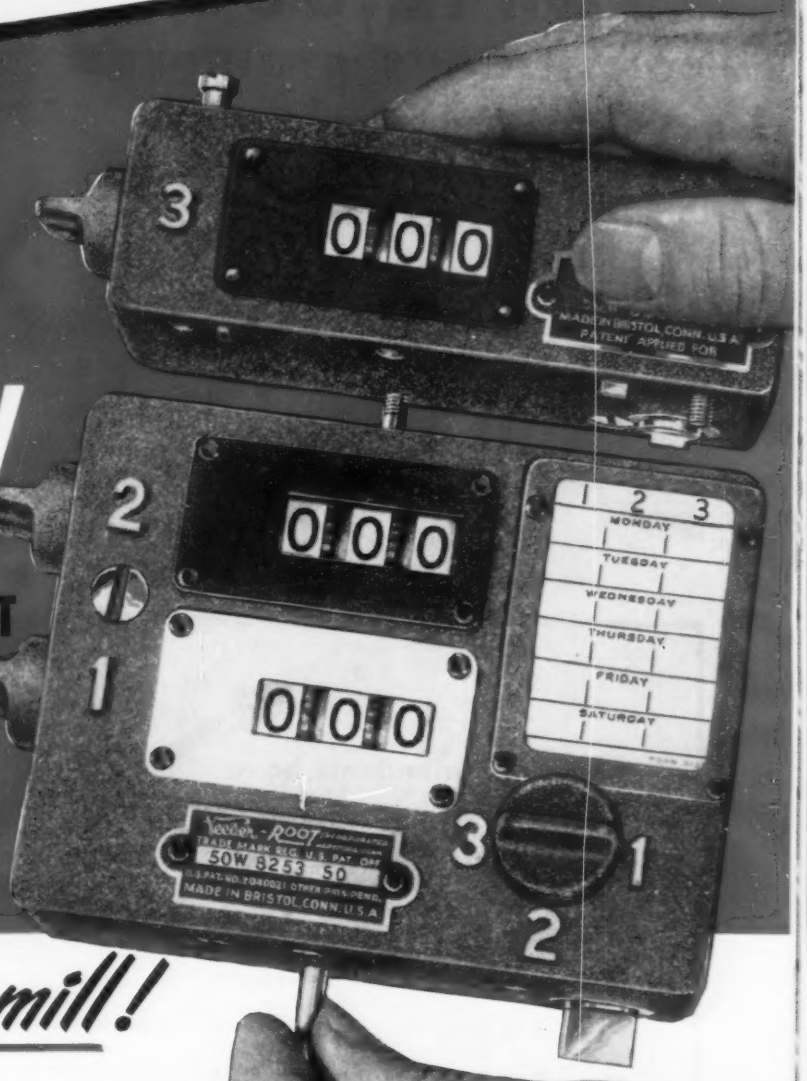


...right in your own mill!

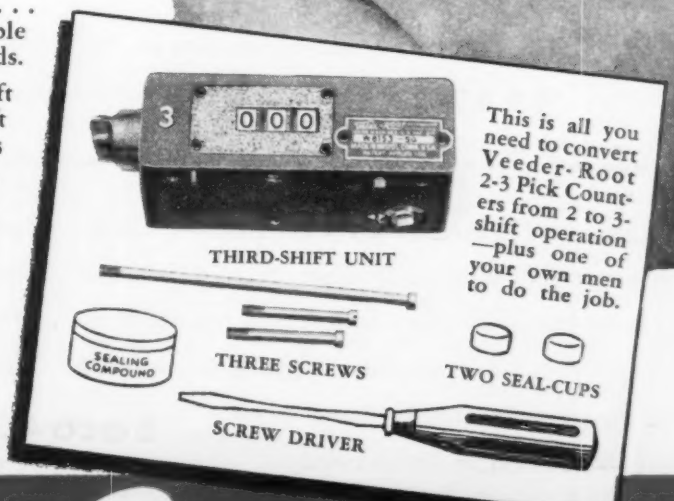
HERE'S HOW EASY IT IS:

1. Remove 2 seals and oiler . . . then just attach the 3rd-Shift Counting Unit to the top of the 2-Shift 2-3 Pick Counter (as shown), with the three brass screws furnished.

2. Tighten the screws with a screwdriver . . . replace seals and oiler. *And the job is done!*

Your own men can do this job . . . *in your own mill* . . . in a few minutes per counter. There's no appreciable disruption of production . . . or of production records.

What's more, you don't have to buy these 3rd-Shift Counting Units *until you convert* from 2 to 3-shift operation. This quick, money-saving convertibility is one of the many exclusive features of Veeder-Root 2-3 Pick Counters. Watch this space for other important features to follow. And get in touch with your Veeder-Root Field Engineer on *all* your current counter needs . . . for looms, frames, and all other types of textile machinery.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000
THIRD-SHIFT UNIT
This is all you need to convert Veeder-Root 2-3 Pick Counters from 2 to 3-shift operation —plus one of your own men to do the job.
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THREE SCREWS
TWO SEAL-CUPS
SCREW DRIVER

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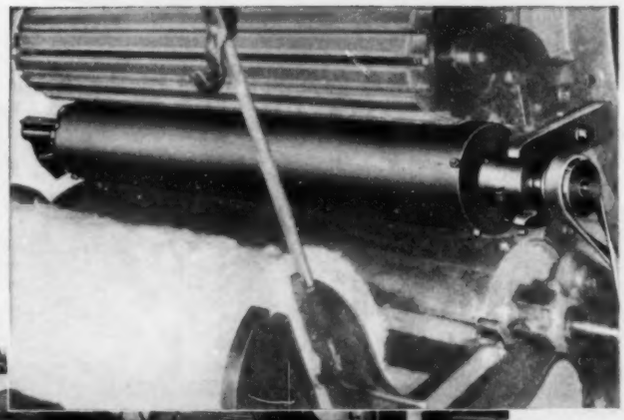
OVER 12,000
CONTINUOUS STRIPPERS

are saving time, increasing production and improving quality in American mills



Mill superintendents have been telling us so for years

Here are a few excerpts from their letters:

1930 *". . . the cards will run almost indefinitely without stripping . . . we expect to send you an additional order."**

1936 *". . . we feel you are conservative in your claims."**

1940 *". . . we are very well pleased with the performance of this equipment . . . we have found definite savings as well as more uniform work."**

1943 *". . . they have paid for themselves many times over . . . we could not get along without them."**

1946 *". . . Mr. ——* is high in his praise of our Continuous Strippers. Says they are doing a wonderful job, and he really has good-running work to prove it. Very seldom see an end down on spinning, even though he is running some irrigated cotton which several of the other mills in this group say they cannot run."*

1947 *". . . Mr. ——* told me that since installing these strippers the yarn breaking strength had gone up and the looms were running at a higher efficiency."*

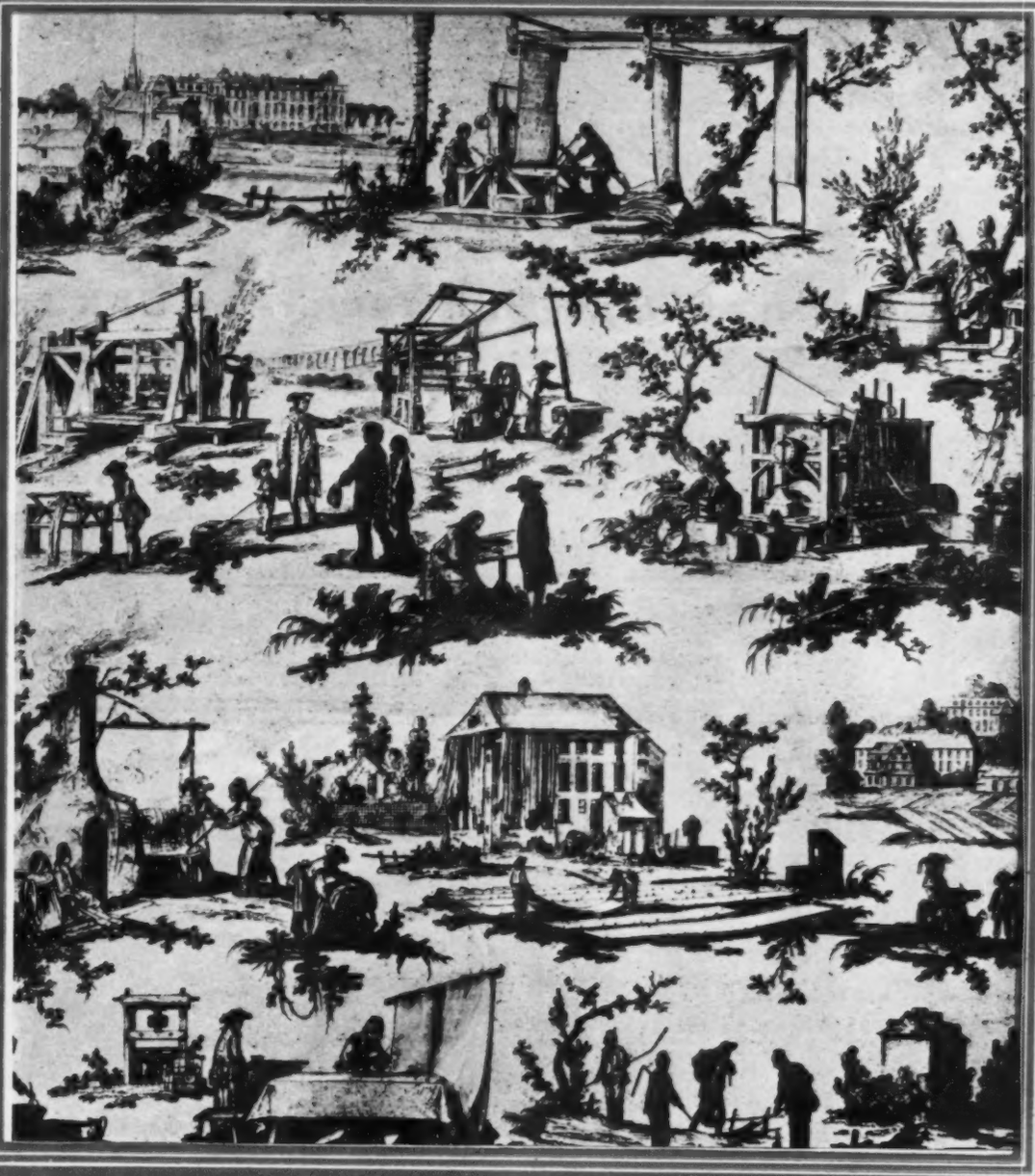
**Name on request.*

The efficient Saco-Lowell Continuous Card Stripper offers your mill these proved advantages: saving of cotton — increased production — improvement in quality of yarn — cleaner card room — saving in labor costs — reduction in power consumption. It is easily and quickly installed on all Saco-Lowell Cards — and on many other makes as well. Write the nearest office for our Bulletin giving complete details.

Saco-Lowell Shops · **BOSTON**

Shops at Biddeford, Maine

Branches: Charlotte · Greenville · Atlanta



Les Travaux de la Manufacture.
Printed fabric designed by J. B. Huet circa 1783 for Manufacture Royale de S.-D. Oberkampf, Jouy, France, showing phases in the manufacture of their printed cottons.
Courtesy Columbia University Library

RAPIDASE

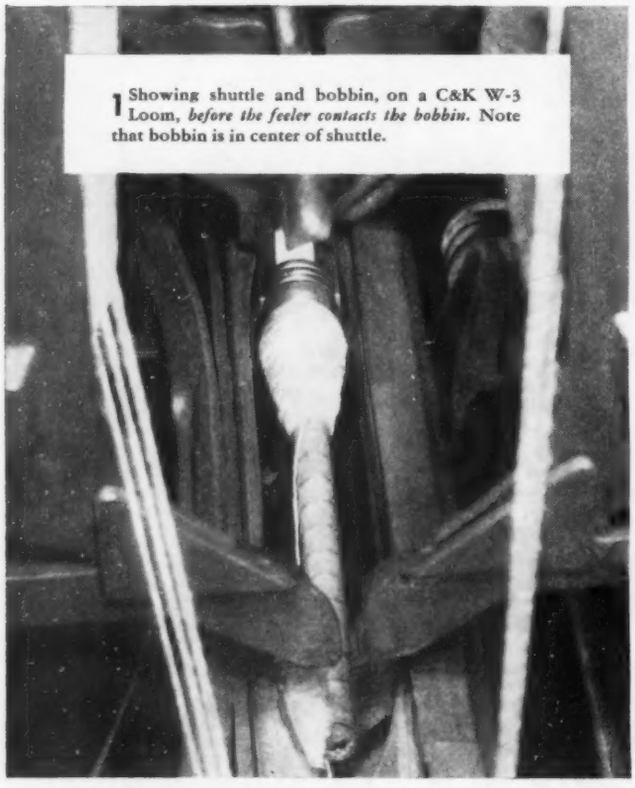
FOR MODERN DESIZING

WALLERSTEIN COMPANY, INC. 180 Madison Ave., New York 16, N. Y.

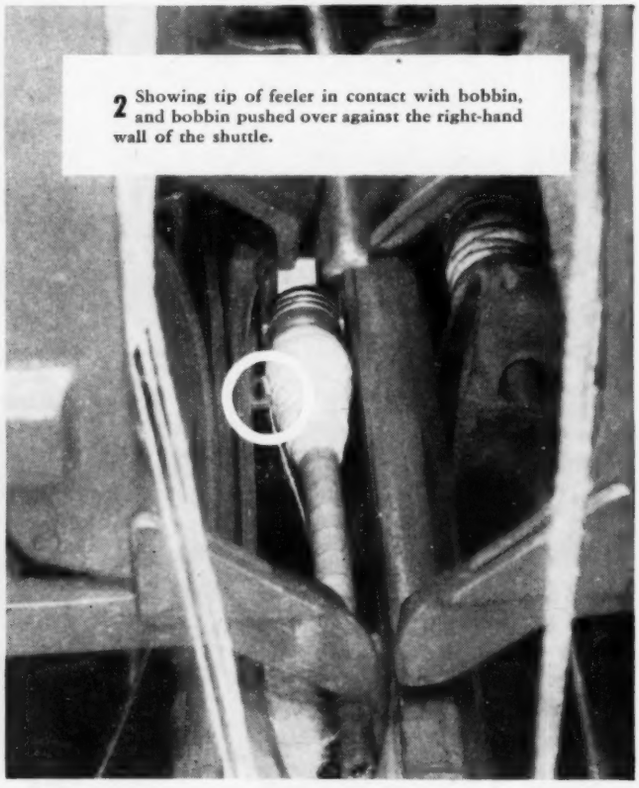
How to Gain and Maintain a

Delicate Balance

in the operation of "Side-Slip" Feelers on C&K Looms



1 Showing shuttle and bobbin, on a C&K W-3 Loom, *before the feeler contacts the bobbin.* Note that bobbin is in center of shuttle.



2 Showing tip of feeler in contact with bobbin, and bobbin pushed over against the right-hand wall of the shuttle.

Look again through the eyes of C&K's special high-speed camera, and this time you see (looking straight down on the loom's magazine) what happens when the feeler contacts the bobbin in the shuttle of a C&K W-3 Loom.

Why all the scientific interest in feelers? Because an efficient feeler should always be positive in action on any type of yarn . . . hard, soft, slick, hairy. *Yet the feeler should never sever the yarn.*

So Question A is: "How heavy a blow does the feeler strike the bobbin?" And as you can see from Photo #2, there's a split second of time in which the bobbin is thrown against the back wall of the shuttle with considerable force. But *exactly how much* force?

To answer that, electric strain gages are wired to the feeler-finger. Next, a recording oscillograph is hooked up to the gages to obtain a permanent record of the strain cycle, and calculations from this record indicate the force of the feeler-blow.

Then, reading between the lines of this oscillograph record, there appears definite information as to where and how the feeler may be improved in design, both as to pattern and material. *Which spotlights the fact that since the force of the blow is due to the acceleration of mass, it seems advisable to reduce both mass and cross-section by use of light metals.*

This is one of many correlated studies now in process in the C&K Engineering Research Laboratories. And each of these studies has the same end-objective . . . to add *proven improvements* to C&K Looms in order to increase speed, improve quality of fabric, reduce the number of loom-stops . . . and, in every other possible way, to cut *your* weaving costs.

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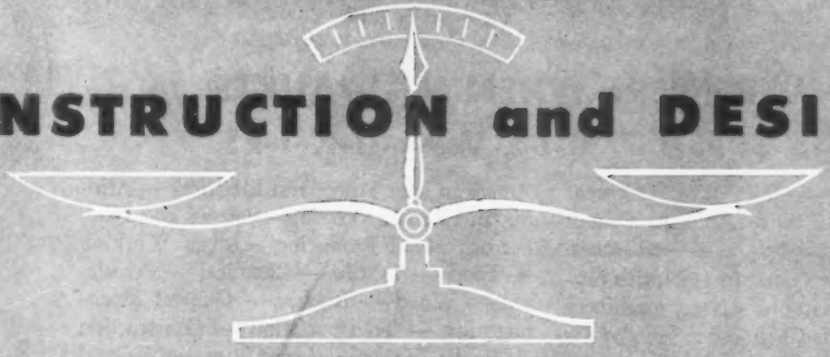

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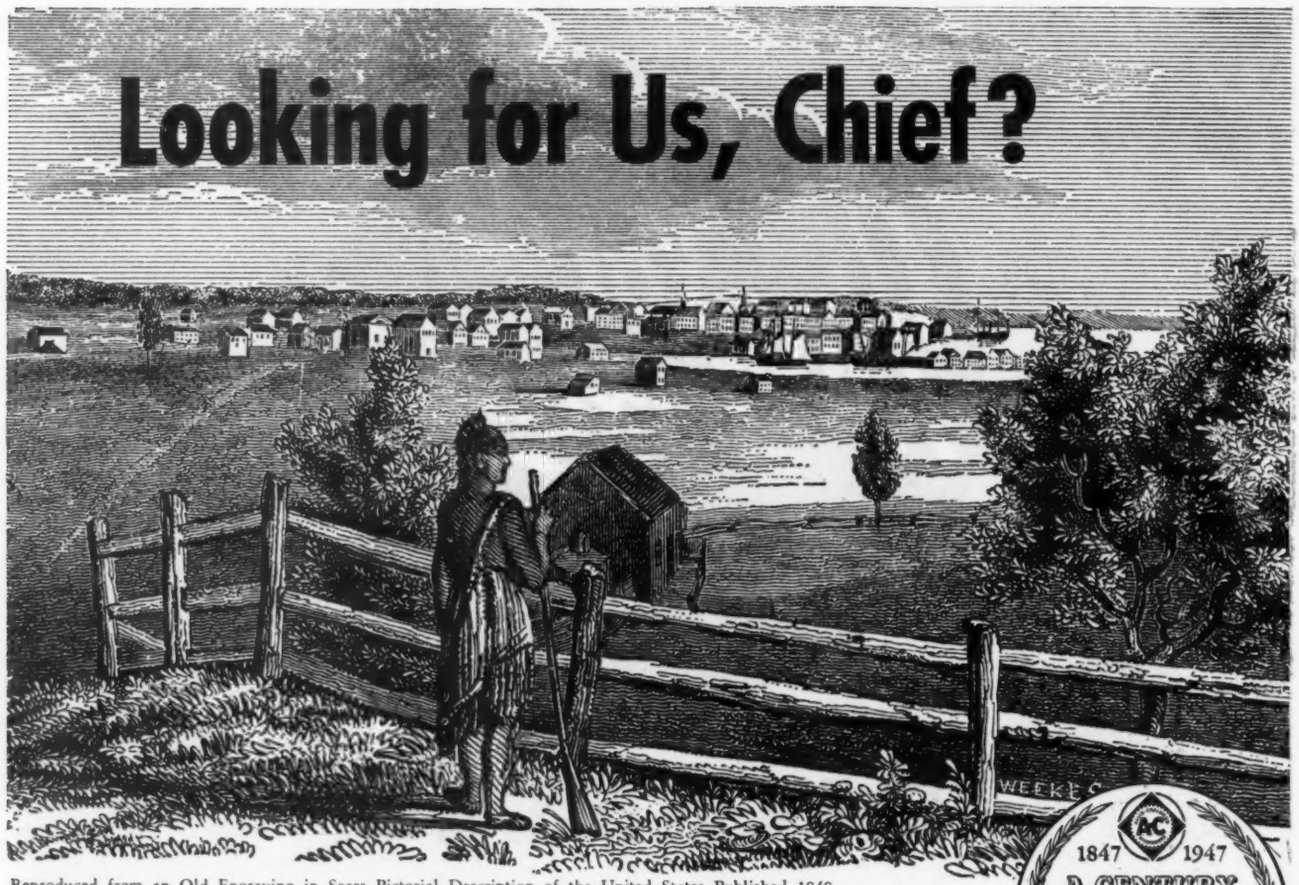

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THAT MADE
America Great

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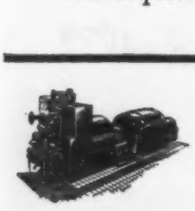
Biggest of All in Range of Industrial Products



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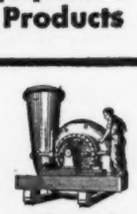

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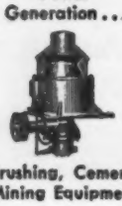

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Exclusive Feature of
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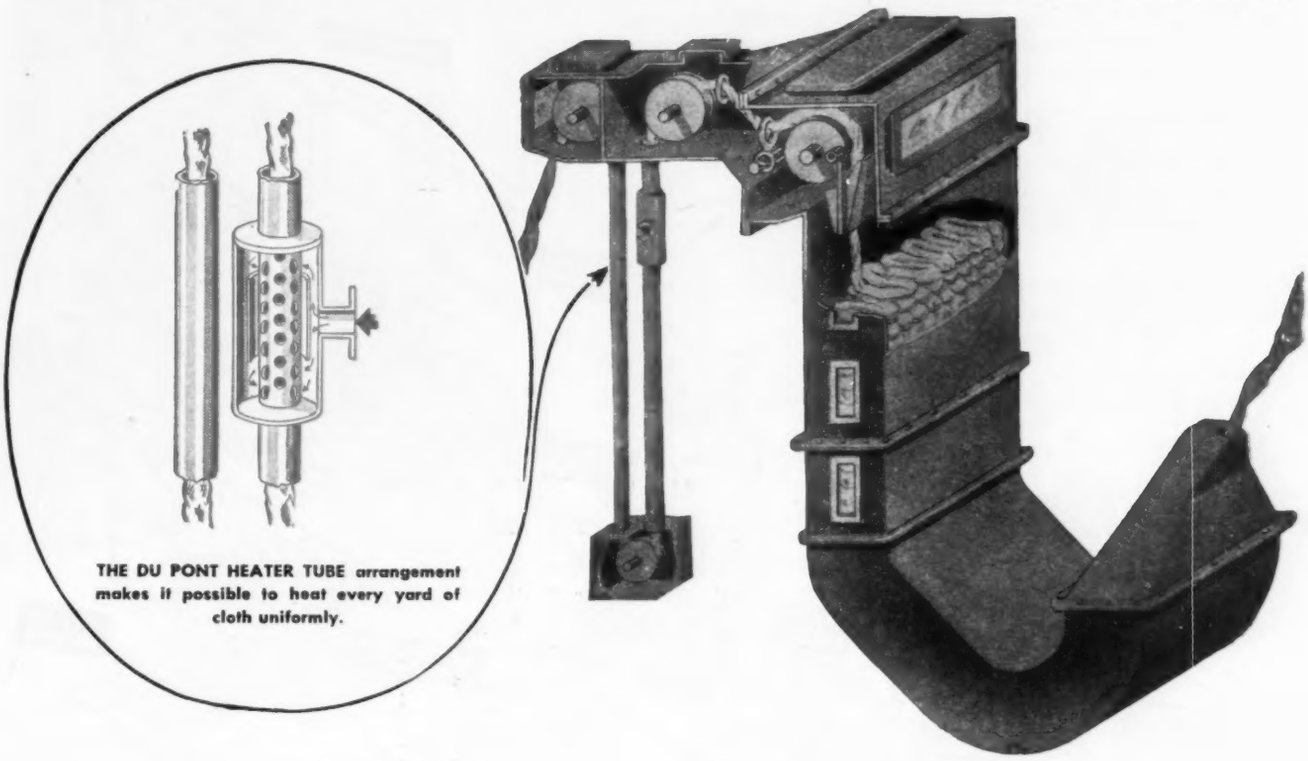

THE DU PONT HEATER TUBE arrangement makes it possible to heat every yard of cloth uniformly.

EACH YARD OF CLOTH put through a Du Pont Continuous Unit is uniformly bleached, regardless of cloth weight or operating speed. It's the Du Pont Cloth Heater which assures this uniformity, for in it every yard of fabric is heated to the same temperature. Quite naturally, with uniform heating, you get the uniform bleaching needed for uniform dyeing.

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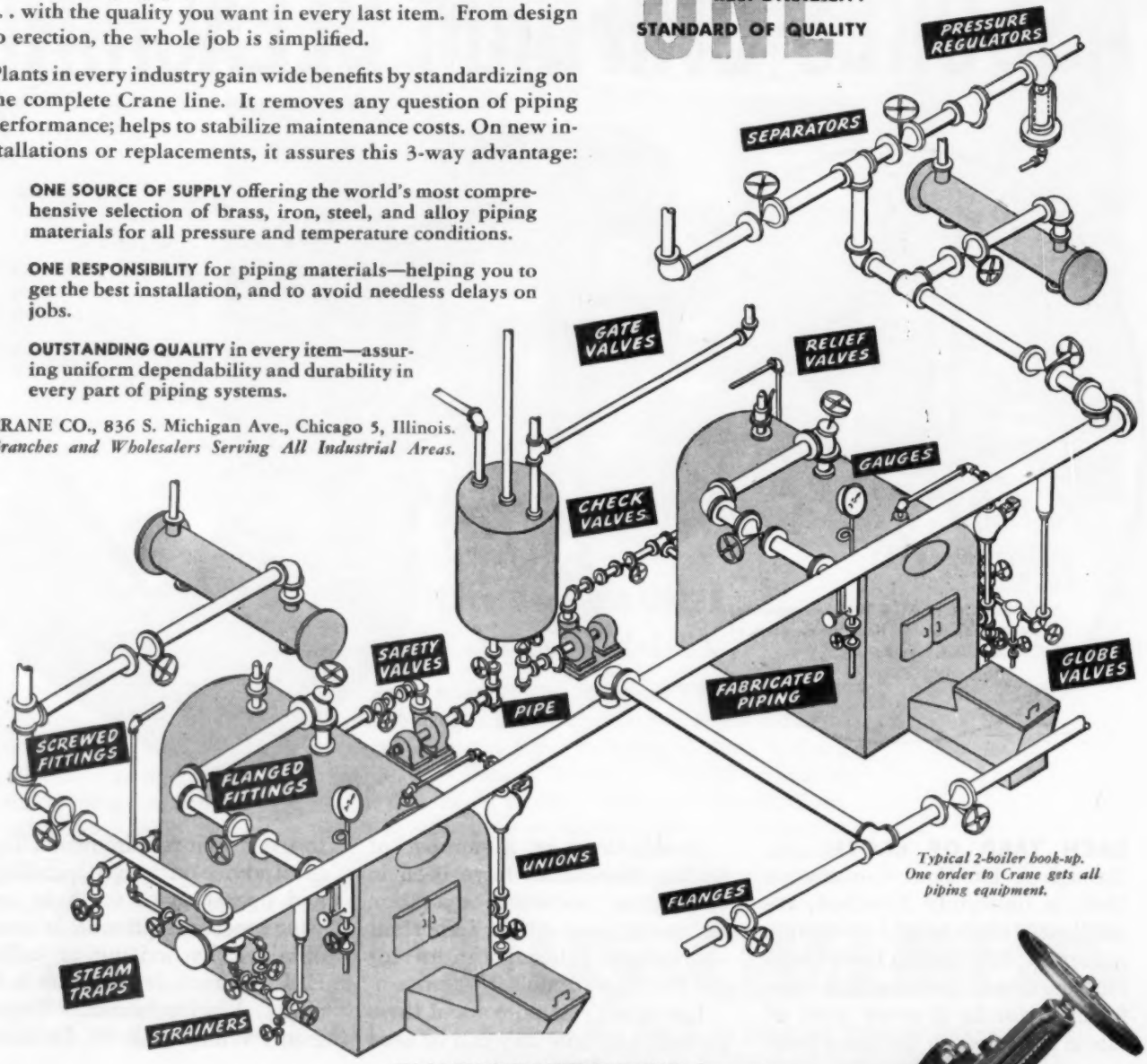
ONE RESPONSIBILITY for piping materials—helping you to get the best installation, and to avoid needless delays on jobs.

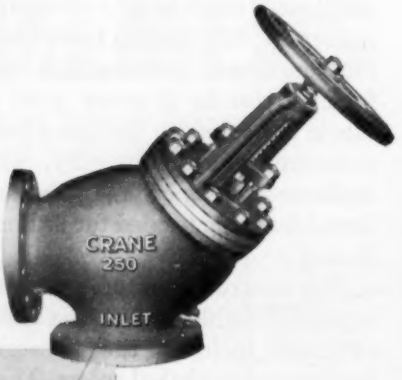
OUTSTANDING QUALITY in every item—assuring uniform dependability and durability in every part of piping systems.

CRANE CO., 836 S. Michigan Ave., Chicago 5, Illinois.
Branches and Wholesalers Serving All Industrial Areas.

ONE
SOURCE OF SUPPLY
RESPONSIBILITY
STANDARD OF QUALITY



Typical 2-boiler hook-up. One order to Crane gets all piping equipment.



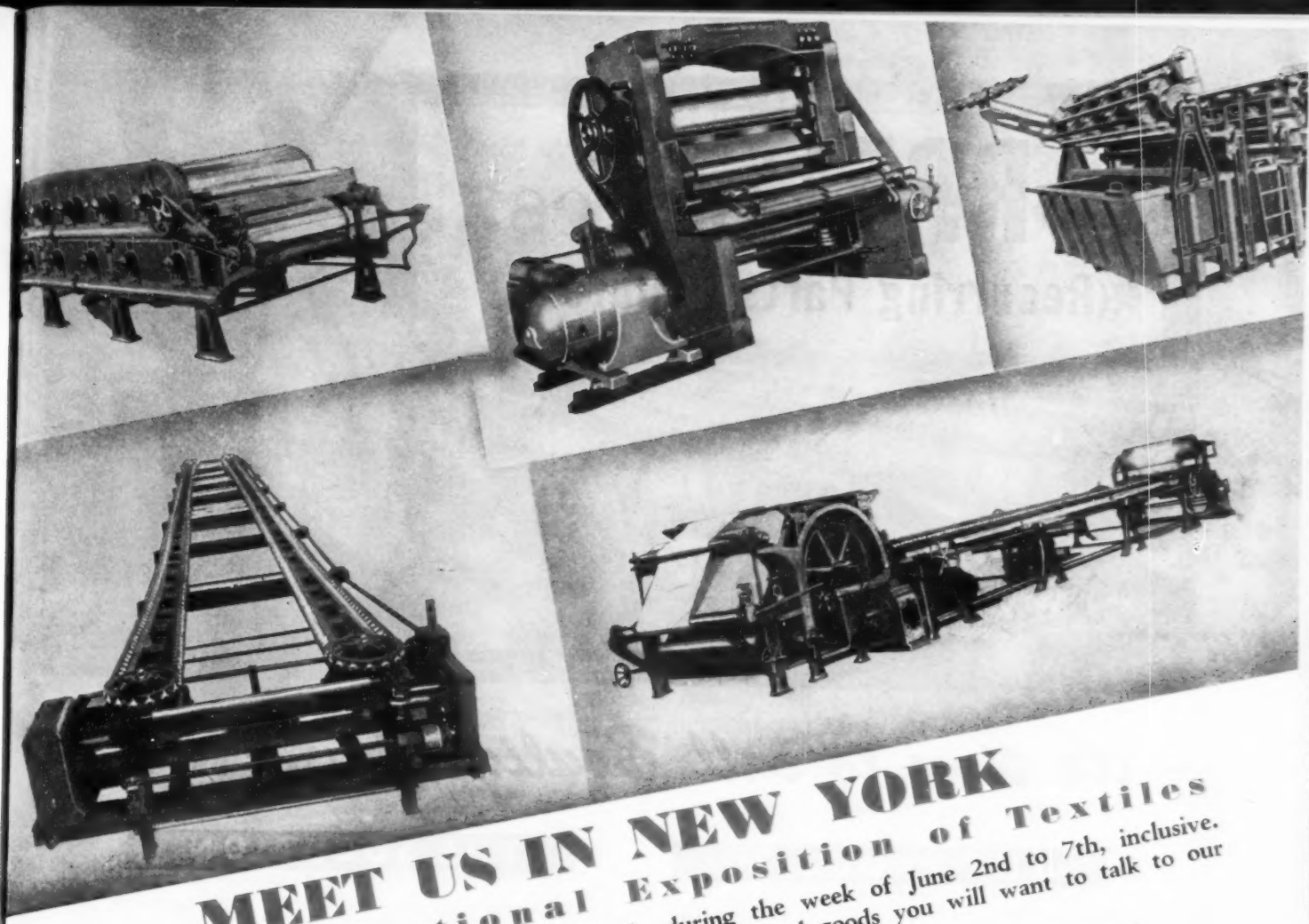
(*Right*) **FOR SAFE BOILER OPERATION,** *choose automatic stop-check valves with a proved performance record. In iron or steel, Crane offers the exact type and size you need. For steam pressures up to 250 Pounds, 450 Deg. F. maximum, Crane recommends this Ferrosteel pattern, angle or straight-way, usable in two positions. Sizes up to 10 in. See your Crane Catalog.*

EVERYTHING FROM . . .

VALVES • FITTINGS
PIPE • PLUMBING
AND HEATING

CRANE

FOR EVERY PIPING SYSTEM



MEET US IN NEW YORK

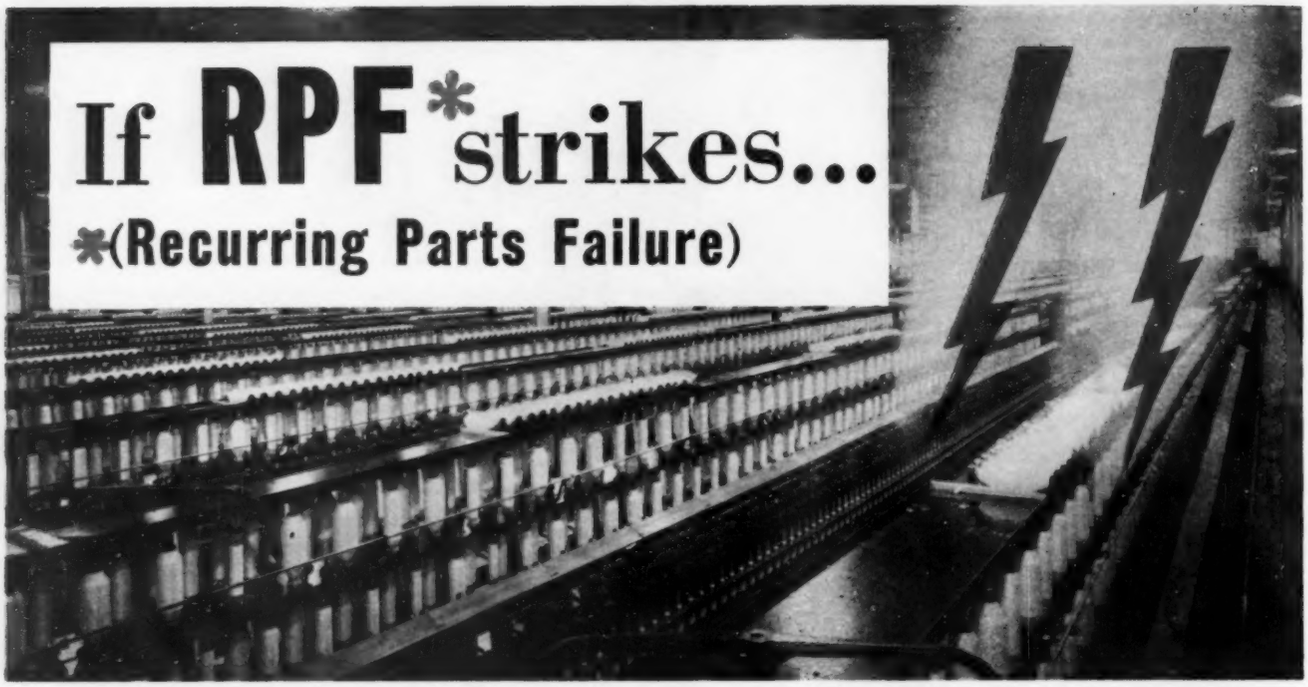
at the International Exposition of Textiles

It will be held at Grand Central Palace, New York, during the week of June 2nd to 7th, inclusive. If you are interested in processing and finishing equipment for broad goods you will want to talk to our engineers. Two Van Vlaanderen machines will be on display.

VAN VLAANDEREN MACHINE COMPANY

370 STRAIGHT ST., PATERSON 3, N. J. Cable Address, VLAANDEREN, PATERSONNJ, U.S.A.

World's largest manufacturer of machinery for processing modern fabrics



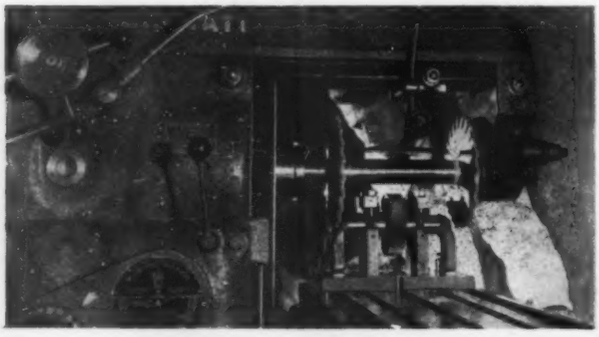
If RPF* strikes...

*(Recurring Parts Failure)

- it's time to call Bouligny! (Say "Boo-li-ny")

THE PROBLEM

The machine parts which wear out too quickly or break too frequently usually cost only "a dollar or so." But the real cost is measured in loss of production and the time it takes to make the repairs. No proof is needed to say that correcting the inherently "weak spots" in your machines, through parts "engineered" to last longer, is real economy—to prevent work stoppage and loss of production.



One of the Nation's Finest

Above is pictured one of the modern milling machines in our Manufacturing Division. This Division was set up with trained men and the finest machines, to meet war's exacting needs. These same facilities are now available for Industry — to tackle machine parts problems requiring heat treating of steels, precision grinding, machining and electro-plating.

THE SOLUTION

Bouligny engineers, out of vast war experience, are tackling and solving "RPF"—recurring parts failure problems, for a number of textile plants. This ability stems from a wide knowledge of the latest in metallurgical and mechanical engineering—backed by equipment capable of carrying out exacting specifications. With such a skilled metal working service, you need not necessarily have Recurring Parts Failure in your plant—with its attendant costliness. Without obligation, let a Bouligny engineer discuss any "weak spot" problems with you.

Precision Parts : Complete Assemblies

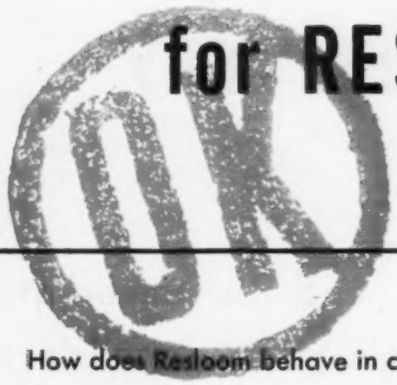
Manufacturing Division

R. H. Bouligny Inc.

ENGINEERS OF LONGER LASTING MACHINE PARTS

Charlotte, N. C.

Here's important news for RESLOOM-ed wool



How does Resloom behave in cleaning operations? . . . how long does it last? These questions are always asked about a new textile chemical . . . and the National Institute of Cleaning and Dyeing has answered them in respect to Resloom in an official bulletin, stating, in brief:

1. WET CLEANING

Resloom treated wool will be easier to handle in the wet cleaning department than ordinary wool. Wet cleaning procedures ordinarily used in dry cleaning plants should cause no shrinkage whatever.

2. DRY CLEANING

Continued dry cleaning in either petroleum solvents or synthetic solvents (or continued wet cleanings) will not remove the finish.

3. SPOT CLEANING

Spotters will have no particular problems in stain removal. In general stains are more easily removed from Resloom treated wool than from ordinary wool.*

*From "Bulletin Service," Nov. 19, 1946, National Institute of Cleaning and Dyeing, Silver Spring, Md., George P. Fulton, Research Director.

A reprint of this complete bulletin, prepared by this independent laboratory, plus other information on Resloom, may be had by writing direct to: MONSANTO CHEMICAL COMPANY, Textile Chemicals Department, 140 Federal Street, Boston 10, Mass.

Resloom: Reg. U. S. Pat. Off.

MONSANTO
CHEMICALS — PLASTICS

SERVING INDUSTRY . . . WHICH SERVES MANKIND

PICKER REPAIR PARTS
For IMMEDIATE DELIVERY

We manufacture and keep on hand for immediate delivery a complete stock of repair parts for Kitson pickers. We can also furnish many parts, such as screens, ball bearings, aprons, and beaters, for other pickers.

In an emergency, a telephone call or telegram can have the needed repair parts at your plant the day after the order is placed.

Aldrich rebuilt pickers are exactly like new machines, and where it is not feasible to have your own pickers rebuilt, these can be exchanged for similar sections in our warehouse which can be rebuilt for you and installed with little or no interruption to production.

AldricH MachinE
Greenwood, WorkS South Carolina

IN SHIRTINGS . . .
Color
IS PROFIT!
Franklin Process
LARGEST PACKAGE DYERS IN THE WORLD
PHILADELPHIA • GREENVILLE • CHATTANOOGA
NEW YORK REPRESENTATIVE—40 WORTH STREET

Beauty—
with a bonus

KODA, Eastman filament acetate yarn, has always rated top fashion billing. It is acetate yarn at its best —smooth, supple, and resilient— beautifully balanced, consistently uniform in its properties.

In addition, KODA has bonus qualities of increasing importance to industry. Dielectric strength is an example. And thermoplasticity. And mildew resistance. Often the combination of these special qualities produces a more efficient fabric than can be obtained with other fibers, natural or synthetic.

Whether for fashion or special function, KODA belongs in the plans of progressive weavers and knitters.

• • •

For further information about KODA, consult A. M. Tenney Associates, Inc., 10 East 40th St., New York, sales representatives for TENNESSEE EASTMAN CORPORATION (Subsidiary of Eastman Kodak Company), KINGSPORT, TENNESSEE.

EASTMAN ACETATE RAYON

When you "go gunning" for high costs...

set your sights on FRICTION!

Let a GULF LUBRICATION ENGINEER help you find opportunities for dollar savings in your mill

EVERY year friction puts its hand in U. S. industry's pocket to the tune of two billion dollars—for repairs, lost production time, and reduced plant efficiency.

To reduce the "take" of friction in your mill, make sure that each moving part in every producing unit is scientifically lubricated.

Here a Gulf Lubrication Engineer can give you valuable assistance. He will accurately determine your specific lubrication requirements, then cooperate with your operating and maintenance personnel to install the most efficient lubrication practice. Result: less wear, fewer production lags, improved equipment performance and lower maintenance costs.

The helpful counsel of a Gulf Lubrication Engineer—and the complete Gulf line of more than 400 quality lubricants — are available to you through 1200 warehouses located in 30 states from Maine to New Mexico. Write, wire, or phone your nearest Gulf office today.

Gulf Oil Corporation · Gulf Refining Company

Division Sales Offices:
Boston · New York · Philadelphia · Pittsburgh · Atlanta
New Orleans · Houston · Louisville · Toledo

GULF INDUSTRIAL LUBRICATION

FIRST AID FOR AILING MOTORS

Look at the BEARINGS

Electric Motors grow *lazy* too! Long hours of steady operation plus frequent overloads lower efficiency . . . increase power consumption. Before you blame the motor take a look at the bearings.

The bearing is one of the most vital parts of a motor. Only when the bearings are correct in design, properly installed, and adequately lubricated, do you get top efficiency. When replacement is necessary specify Johnson E M (Electric Motor) Bearings. From our list of over 250 stock sizes it is easy to secure your needs. Every bearing is correct in design, alloy, and tolerance. Our new catalogue describes this complete service in detail. Why not write for a copy today? Johnson Bronze Company, 530 South Mill Street, New Castle, Pennsylvania.

Manufacturers

of Electric Motors find Johnson Bronze a dependable source of supply for all their Sleeve Type Bearings. We help them make the correct choice . . . we deliver their requirements strictly to specifications. Our advice is available without obligation.

JOHNSON BRONZE
SLEEVE BEARING HEADQUARTERS
BRANCHES IN 18 INDUSTRIAL CENTERS
For REPLACEMENT Specify JOHNSON EM ELECTRIC MOTOR BEARINGS

SUPERLITEFAST

Best dye under the sun for

Spun Rayon

YOUR PROBLEM!

... is to find practical, *dependable* dyes which are not impaired by the use of curable RESIN FINISHES to keep spun rayon garments free from crushing and wrinkling ... dyes which are *really* FAST to light and FAST to laundering. And you must have the right solution to this problem if you are to satisfy your customers and safeguard their vast Spun Rayon sales volume which is much more important today than ever before.

OUR SOLUTION!

... is "Superlitefast" ... the special line of Azo dyes which positively are NOT impaired by the use of curable resin finishes and which also assure you of *maximum* fastness. While regular standards require only a 40 hour Fadeometer test, "Superlitefast" dyes will stand 100, 150 and up to 300 hours. While a 105° F Launderometer test is acceptable, "Superlitefast" dyes will stand the 160° F test. And the color range is COMPLETE.

YOUR PROOF!

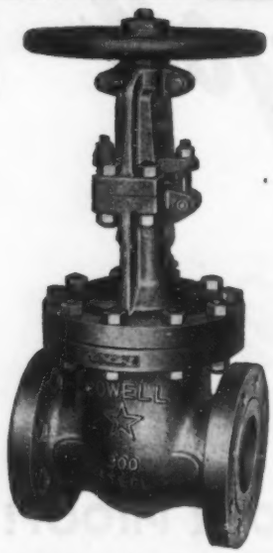
... is to make FREE use of our Technical Staff and Laboratory Service. Send us a sample of any rayon or other fabrics and the shade you desire. We will match the shade with "Superlitefast" dyes—dye up samples—test them thoroughly for sun and washing fastness — then send you a complete outline of the procedure and formula in a permanent DATA BOOK. Use this trouble-free service NOW.

ALTHOUSE

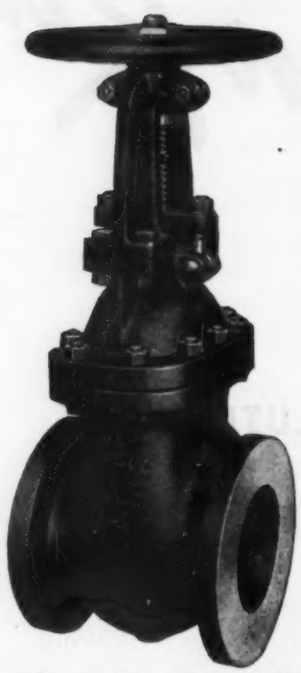
Chemical Company

READING • PA

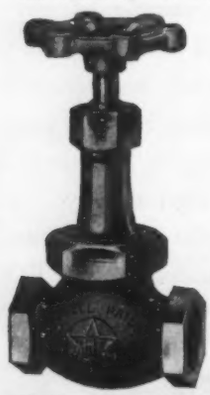
depends on *perfect* control.



Class 300-pound Cast Steel Gate Valve with bolted flanged yoke, outside screw rising stem and taper wedge solid disc. Powell Cast Steel Valves of all types are available in pressure classes from 150 to 2500 pounds, inclusive.



Large Iron Body Bronze Mounted Gate Valve for 125 pounds W.S.P. made in sizes 2" to 30", incl. Has flanged ends, outside screw rising stem, bolted flanged yoke and taper wedge solid disc. Taper wedge double discs can be provided in sizes 2" to 12", incl. Also available in All Iron for process lines.



Small size 200-pound Bronze Globe Valve for steam, water, oil or gas. For assured, long-life performance, it has a renewable, specially heat treated stainless steel seat and regrindable, renewable, wear-resisting "Powellium" nickel-bronze, plug type disc.

The performance of an orchestra depends on the control exercised by the conductor. Without this control, the greatest aggregation of musicians in the world would make a sorry mess of the finest symphony.

Likewise, the smooth performance of an industrial plant depends on the valves which control the media necessary to its operation. And for perfect performance in flow control, the valves must be adapted in every way to the conditions under which they operate.

For more than a century, Powell Engineers have been designing valves to meet every new flow control condition as it has arisen.

Today there's a Powell Valve, in Bronze, Iron, or Cast Steel, for every known requirement of Industry. And to meet the demands of the Chemical and Process Industries for corrosion-resistant valves, Powell makes a complete line, including many special designs, in the widest range of pure metals and alloys ever used in making valves.

The Wm. Powell Company
Cincinnati 22, Ohio
DISTRIBUTORS AND STOCKS IN ALL PRINCIPAL CITIES

POWELL VALVES

Better Handling OF HOSIERY IN THE MILL!

FORMICA trays and hosiery carriers especially designed for handling hosiery during the manufacturing processes, save time — and, still more important, prevent the creation of many seconds. A much larger percentage of the product comes through as firsts saleable at the full manufacturer's price.

That difference quickly pays for the Formica equipment.

Both the tray and the carrier have been designed with sturdy reinforcing ribs to provide maximum strength with minimum weight. Design has been very carefully worked out to prevent shattering of edges so there are never any rough places on which fine fabrics can be snagged.

The trays and carriers are very smooth when you get them, and, because of the nature of the material and the design, they stay that way through long years of service.

This is equipment that really saves the knitter money!

FORMICA
TRADE MARK REG. U.S. PAT. OFF.

THE FORMICA INSULATION CO., 4635 SPRING GROVE AVE., CINCINNATI 32, OHIO

Guide Posts to Increased Production
Gateway to the Weave Room
Modern Slashing enables you to
Reduce loom stops
Control quality
Maintain standards
No. 6 SLASHING
Every Overseer of Weaving knows that efficiency in the Weave Room is to a considerable extent controlled by the quality of the work performed in the Slashing Room. Good warps reduce loom stops.
Warps must be as free from imperfections and crossed threads as is practical under normal running conditions.
Care should be taken to make sure that the yarn is not made brittle by undue stretch or tension in the Slasher and its weaving qualities impaired. The elasticity and life of the yarn must be preserved. The best of yarn can be seriously weakened by poor controls at the Slasher.
Modern Slashers and Sizing equipment with automatic controls enable you to turn out good warps consistently. They make possible accurate and continuous control of every operation.
You can maintain your own particular standards of quality and at the same time increase production.
The Slasher Room has been called the "Gateway to the Weave Room." You can make it a Gateway to Increased Production.
Sixth in a Series
Of What Well-Managed Mills Are Doing to Get the Best Results in Weaving
DRAPER CORPORATION
HOPEDALE MASSACHUSETTS

Here's what DRAPER says

WE offer you complete Taylor Automatic Slasher Control applied to:

1. Cooking Kettle
2. Storage Kettle
3. Size Box Temperature and Level
4. Cylinders.

Protect your standard of quality—insure more uniform warps and increased weave room efficiency with Taylor Controls. Or write Taylor Instrument Companies, Rochester, N.Y., or Toronto, Canada.

Here's what happens when you install automatic control

CONSOLIDATED TEXTILE CO., INC.
P. O. Box 820
LYNCHBURG, VIRGINIA

Taylor Instrument Companies,
Box 110, Rochester 1, N. Y.

January 13, 1947

Attention Mr. W. W. Lockwood

Dear Sir:

Since the installation of the new Taylor Automatic Controls on our Slashers, we have found a definite improvement in the running of our weaving.

With these controls we have reduced the amount of starch used, reduced shedding in weave room, increased our efficiency, and the cloth weights have been more uniform. We are very much pleased with the improved results we are getting.

Yours very truly,

J. H. Burgess,
Asst. Supt.

JHB:SL

Instruments for indicating, recording and controlling temperature, pressure, humidity, flow and liquid level.

Taylor Instruments mean ACCURACY FIRST!

CUT LIGHTING • CLEANING • HEATING COSTS WITH

PC GLASS BLOCKS

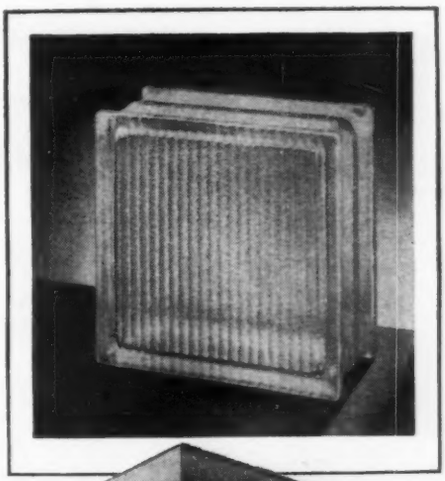
▶ One way to combat rising production costs is to take full advantage of the economies inherent in the modern building material of countless uses, PC Glass Blocks.

Light—plenty of it—is directed to where it is needed most. So you save much of the money you would otherwise pay out for artificial light.

Panels of PC Glass Blocks are quickly and easily cleaned, inside and out. They prevent dust infiltration, rarely need repairs or replacement. So they save time and the cost of maintenance labor and supplies.

In addition, PC Glass Block panels have high insulating efficiency. So heat losses are materially reduced, thereby saving wear and tear on heating and air-conditioning equipment and saving many of the dollars you would otherwise spend for fuel.

These are some of the ways PC Glass Blocks pay for themselves over a period of years. Why not fill in and mail the convenient coupon for a free copy of our booklet, which contains *complete* information on this modern building material? Pittsburgh Corning Corporation, 632 Duquesne Way, Pittsburgh 22, Pennsylvania.



Also Makers of
PC Foamglas Insulation

PITTSBURGH PC CORNING
REG. U.S. PAT. OFF.

FOR ADDITIONAL INFORMATION SEE OUR INSERTS IN SWEET'S CATALOGS

GLASS BLOCKS

Distributed by PITTSBURGH PLATE GLASS COMPANY
by W. P. Fuller & Co. on the Pacific Coast and
by Hobbs Gluss Ltd. in Canada

Pittsburgh Corning Corporation
Room 632, 632 Duquesne Way
Pittsburgh 22, Pa.

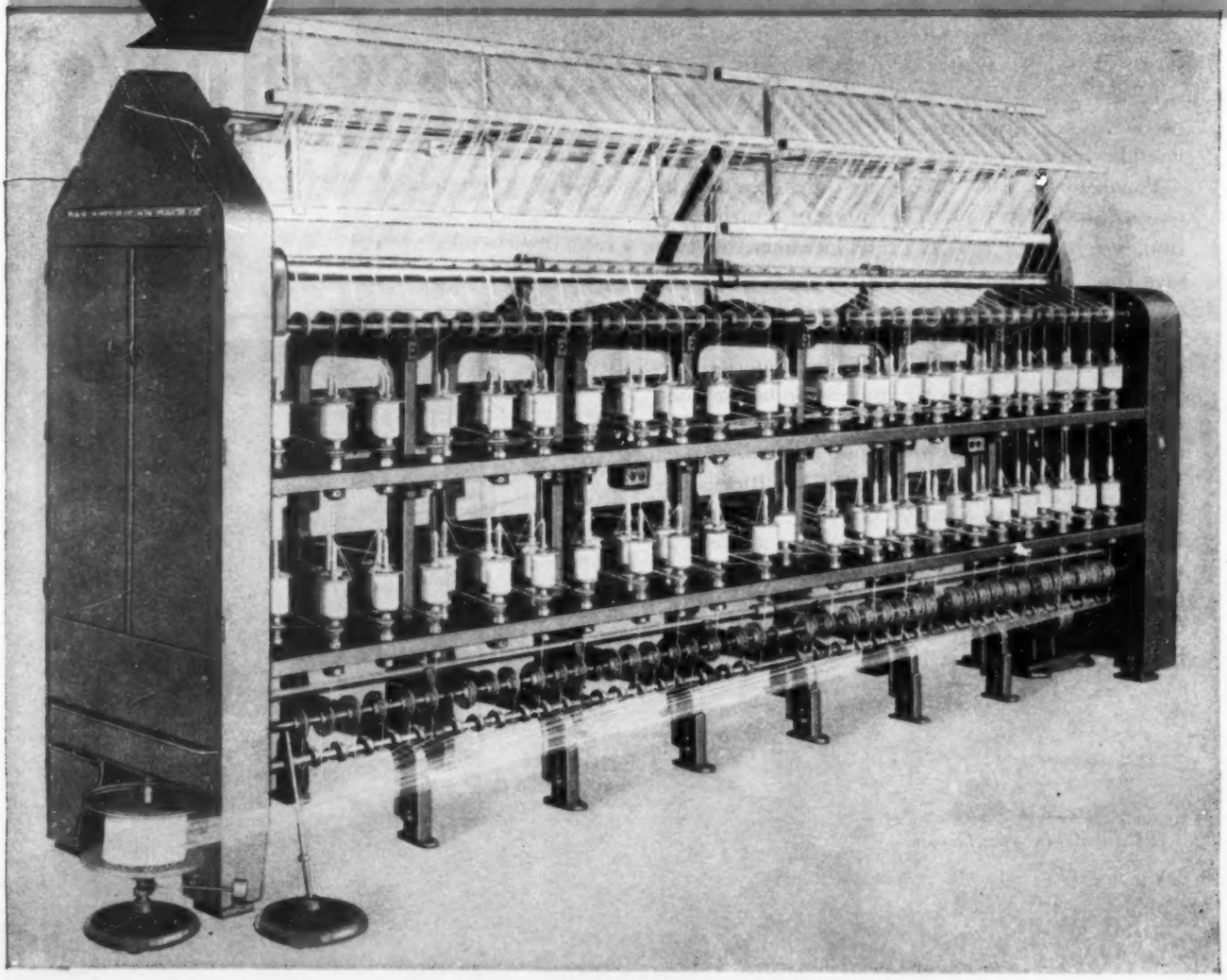
Please send along my free copy of your new book on the use of PC Glass Blocks for Industrial Buildings. It is understood that I incur no obligation.

Name_____

Address_____

City_____ State_____

H & B RUBBER



The H & B Rubber Covering Machine produces covered rubber yarn of accurately measured, fully controlled elongation and perfect balance. Only such yarn can be used, with complete assurance of trouble-free operation, to make bathing suits, foundation garments, hosiery, accessories and other articles of clothing, with the quality that *sells*. To achieve this, the H & B Rubber Covering Machine incorporates a number of exclusive mechanisms, and these are "the little things that make a big difference" in the finished garments.

H & B AMERICAN

Builders of Modern

FACTORY, EXECUTIVE OFFICES AND EXPORT

COVERING MACHINE

IT'S THE LITTLE THINGS *that make a Big Difference*

VARIABLE ELONGATION DRIVE

This variable speed drive—all enclosed in the head end — permits full control of elongation while the machine is running. This feature eliminates stop marks on the finished product and assures a covered rubber yarn that will not vary in stretch characteristics when woven or knitted into the finished garment.

VARIABLE UPPER SPINDLE DRIVE

This variable speed drive—all enclosed in the foot end and adjustable while machine is in operation — assures a perfectly balanced covered rubber yarn. This yarn is free of stop marks, dormant as it is wound on the reels, and thus easily workable in subsequent garment manufacturing.

BALL BEARING SPINDLE

In the newly redesigned high speed spindle we are making use of the grease sealed injection type ball bearing. This prevents talc from entering the bearings and insures a free running spindle that is easily lubricated—one lubrication lasting from 9 to 12 months. Its one piece unit construction with bullet and flyer makes doffing quick and easy.

That's why we say, *"It's the LITTLE things that make a BIG difference."*

Standard High-Speed Light-Covering Spindle Equipped with Adapter, Running Heavy Yarn From Long Traverse Tube.

MACHINE CO.

Textile Machinery

DIVISION PAWTUCKET, RHODE ISLAND, U.S.A.

BRANCH OFFICES

ATLANTA, GA.
815 CITIZENS AND SOUTHERN NATIONAL BANK BUILDING

CHARLOTTE, N. C.
1201 JOHNSTON BUILDING

GREATER PRODUCTION

. . . every hour of the day

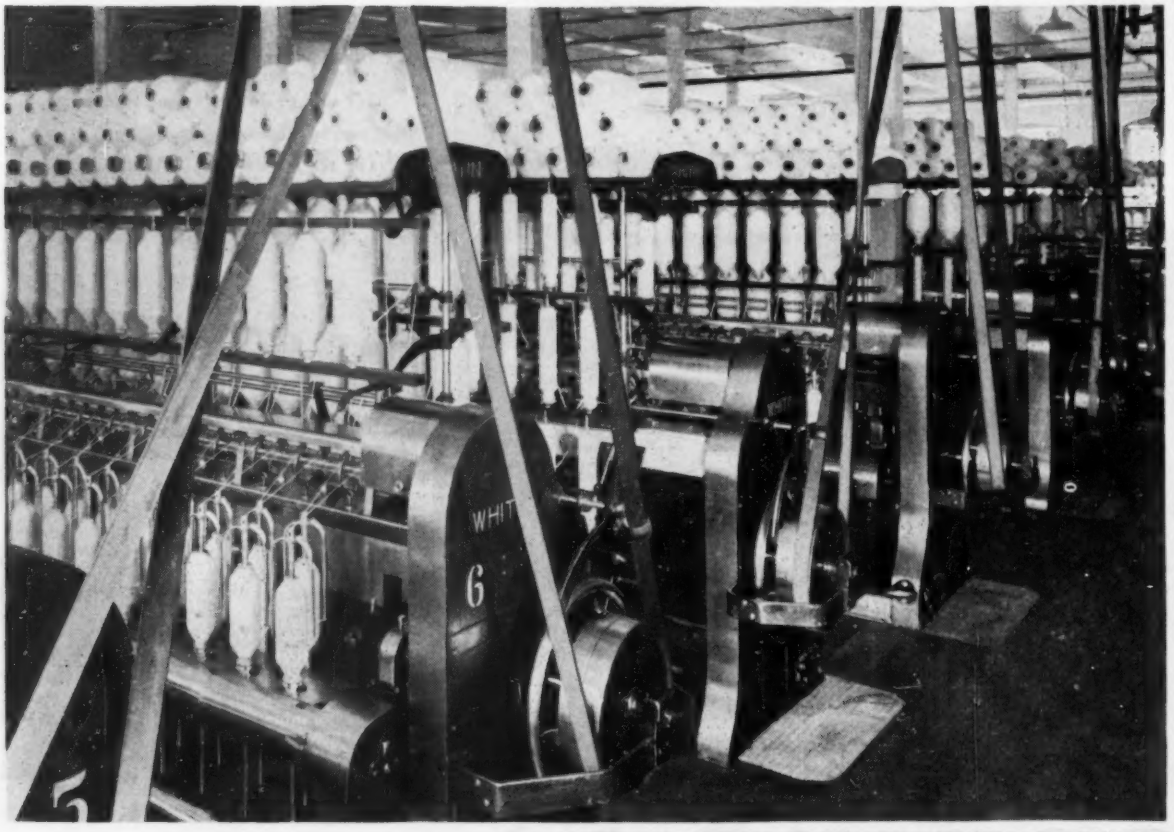
RHOADS *Tannate*

WATERSHED LEATHER BELTING

Machines equipped with Tannate Leather Belts keep production moving with a minimum of interruptions for repairs or replacements.

Built for long reliable performance, Tannate has high power transmitting capacity, assures maximum machine speeds even under varying load conditions. Tannate is flexible, runs easily over small pulleys with short centers and high pulley ratios. Tannate is stronger, too; has an average strength 1/3 to 1/2 higher than most first-quality oak belting. Resists heat, water, machine oils and many chemicals.

Use Tannate to increase output, lower costs; experience has proved it pays to *belt your drives with Tannate.*



ESTABLISHED 1702

J. E. RHOADS & SONS

35 NORTH SIXTH ST., PHILA. 6, PA.

NEW YORK • CHICAGO • ATLANTA

PRODUCERS OF FINE LEATHER FOR 245 YEARS

Yes, the Use of

BECCO HYDROGEN PEROXIDE HAS INCREASED in the Textile Industry

● Indicative of the increase in the use of Becco Hydrogen Peroxide, is the fact that we have increased the number of our tank cars by more than 1300 per cent from 1931 to 1947!

What is the reason for this steady substantial growth in the use of Becco Hydrogen Peroxide? This continuous growth is not because of only *one* reason, but several. First, as a result of continuous research, Becco Hydrogen Peroxide has been improved to meet the specific requirements of the textile industry. Second, Becco Hydrogen Peroxide is very easy to handle, whether goods are bleached in kiers, package or other machines by the cold method or by continuous steam bleaching. Shipped in drums or tank cars, it is easily, quickly and automatically fed to the point of use. Third, Becco research has been devoted in large part to improving textile bleaching. As a result of many years of this research, Becco's engineers and chemists are qualified to give valuable advice on textile bleaching. Why not ask them what system is most suitable for bleaching and processing your goods, whether they be cotton, wool, knit goods, rayon or other natural and synthetic fibres. No obligation.

BECCO SALES CORPORATION

AGENTS FOR BUFFALO ELECTRO-CHEMICAL COMPANY, INC.

BUFFALO 7, NEW YORK

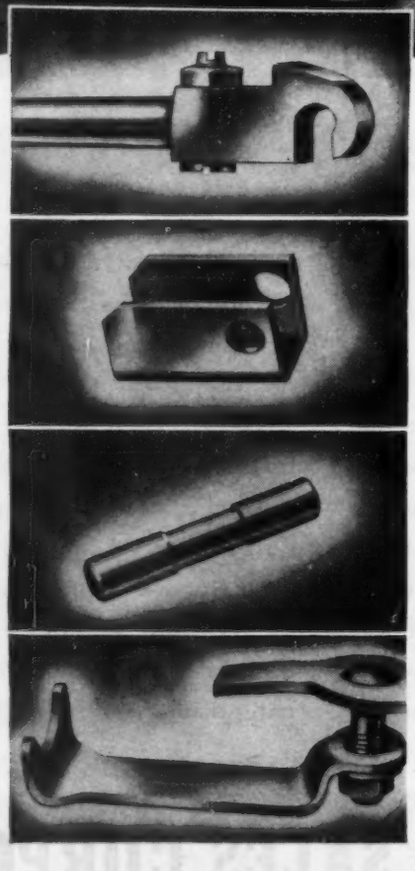
New York · Boston · Philadelphia · Chicago · Charlotte

Announcing . . .

THE IMPROVED

PATERSON TENSION SHUTTLE

for Shuttle-changing or Box Looms



New!

LEVELING DEVICE

Spindle head, completely redesigned and constructed, permits accurate alignment by turning leveling screw with slot provided in shank. Lock nut maintains setting. Eliminates any need for bending spindle by hand with possibility of breakage or damage to top spring. Slot head design makes spindle change easy.

New!

METAL HEAD BOX

Heavy steel box holds spindle head rigidly in place, prevents side play. Provides solid base for leveling screw. No part of spindle head contacts wood. Assures lasting, positive alignment.

New!

SPINDLE HEAD PIN

Double shouldered steel pin, shaped so it can't work out through front or back wall of shuttle. Avoids danger of reed spoilage or "smashes" from "break outs". A patented feature!

New!

INTERCHANGEABLE CATCH

Shuttle can be assembled with either long catch, to fit a wooden bobbin, or short one for paper tube. Parts interchangeable. Operation requires less than two minutes. Provides positive fit.

NOW, with four tested improvements in mechanical design, this U S Paterson Tension Shuttle will help to eliminate "smashes" and "seconds", and reduce excessive shuttle maintenance costs.

Once again, U S matches progress in loom design with progress in shuttle design, giving you proved new features that assure greater efficiency, increased production, and fabric quality protection.

Check over these time-saving, money-saving advantages. A U S representative will show you the improved Paterson Tension Shuttle at your request. See it, try it, before you place your next shuttle order!

U S BOBBIN & SHUTTLE CO.

PROVIDENCE, R. I.
GREENVILLE, S. C.

CHICAGO AGENT:
Albert R. Breen,
80 E. Jackson Blvd.

LAWRENCE, MASS.

CANADIAN AGENT:
W. J. Westaway
Montreal, Que. — Hamilton, Ont.

JOHNSON CITY, TENN.
CHARLOTTE, N. C.

ALABAMA AGENT:
Young & Vann Supply Co.
Birmingham

THE SEAL OF QUALITY AND SERVICE SINCE 1857 — US — ESTABLISHED 1857

Don't Lubricate until 1952

NORMA
MADE IN
EMMCO R-DIVISION
The generator with the built-in regulating circuit that automatically holds steady voltage.

Says

Electric Machinery Mfg. Co. of Minneapolis, Minn., another user of Norma-Hoffmann's Patented "Cartridge" Bearings

The new "Regulectric" generators need no adjustments, no maintenance, no attention for years and one reason is—

. . . the bearings are sealed as effectively as are the components of the built-in regulating circuit.

Made to double-row width, these "Cartridge" Bearings have 100% more grease capacity than any other standard self-sealed type and they also permit added shaft strength and reduced overhang. Write for all the facts on Norma-Hoffmann's "Cartridge" Bearings.

NORMA-HOFFMANN
***Precision* BEARINGS**
BALL • ROLLER • THRUST

NORMA-HOFFMANN BEARINGS CORPORATION
STAMFORD, CONNECTICUT
FIELD OFFICES: New York, Chicago, Cleveland, Detroit, Pittsburgh, Cincinnati, Los Angeles, San Francisco, Seattle, Phoenix

• Please note the change in the corporation name. The management believes that the new name NOPCO CHEMICAL CO., is more truly descriptive of the increasingly broader scope of the company's activities in chemical manufacturing.

●

that make NOPCO* FUA the "Yes" choice in Wool Oils!

gumming of cards...NOPCO FUA actually speeds up carding.

static...anti-static properties of NOPCO FUA cut down fly in carding.

"bearding"...NOPCO FUA prevents this common cause of fiber weakening.

spinning difficulties . . . NOPCO FUA performs equally well on either mules or frames.

setting . . . NOPCO FUA does not become set in the yarn during steaming nor in the goods after steaming and crabbing.

soap or detergents . . . NOPCO FUA gives remarkable fulling and scouring results without such additives.

mineral oil... NOPCO FUA is 100% fatty.

oxidation . . . NOPCO FUA is non-oxidizable.

To these eight advantages add 12 equally important advantages provided by NOPCO FUA . . . and you have the 20 reasons why many leading wool manufacturers have already made new, revolutionary NOPCO FUA their "Yes" choice among wool oils. Write today for NOPCO DATA BULLETIN which fully describes the 20 important ways in which NOPCO FUA helps improve wool processing.

NOPCO CHEMICAL COMPANY
(Formerly National Oil Products Co.)
BOSTON • CHICAGO • HARRISON, N. J. • CEDARTOWN, GA. • RICHMOND, CALIF.
*Reg. U. S. Pat. Off.

NOPCO FUA
SELF-FULLING, SELF-SCOURING WOOL OIL

BUT CAN I BUY IT?

Even though some Nopco products are not now available in the desired volume, we are confident that the situation will gradually better itself. Meanwhile, we shall do our best to keep you informed of any developments. Here is a statement of the current situation on the NOPCO product advertised.

PRODUCT — NOPCO FUA

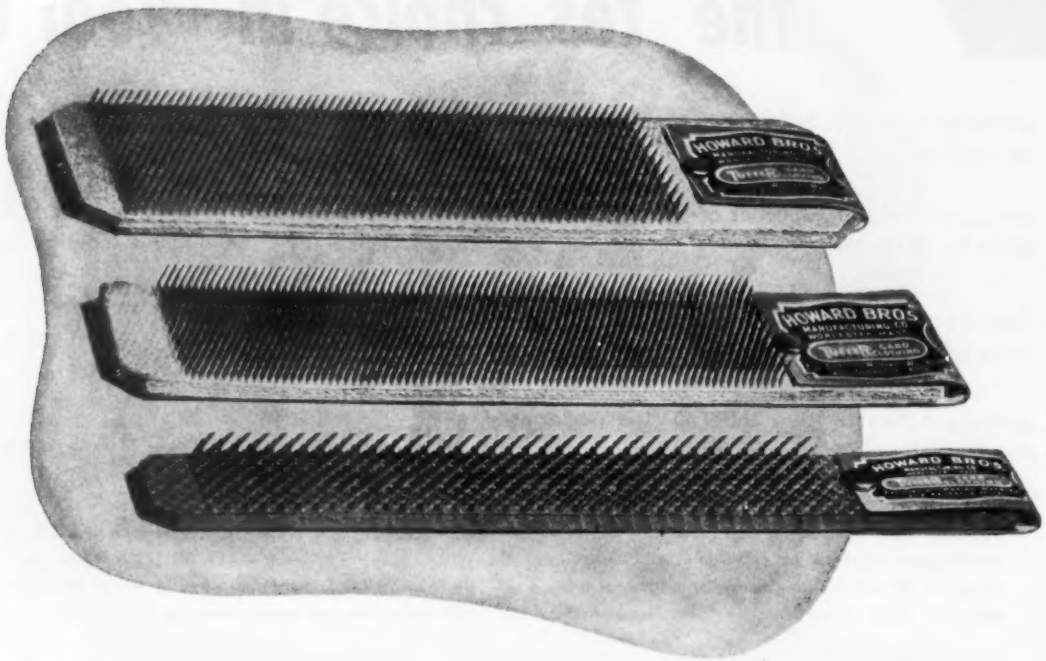
DELIVERY — Present customer deliveries good, keeping pace with demands. Although there is some tightness in raw materials, we are able to accept a limited amount of new business at the moment. We will be glad to submit samples so that you can test and observe the quality of this new development.

PRICE — Based on present costs of raw materials. Any decrease in such costs will immediately be reflected in our price.

OUTLOOK — Plant expansion has been completed. Increased production will depend upon increased flow of raw materials.

EVOLVED THROUGH RESEARCH NOPCO

You Can Depend On "TUFFER" PRODUCTS



They Improve Production All Along the Line . . .

Tufferized Card Clothing—for better quality and greater production and efficiency of operation!

Developed and exclusively owned and used by Howard Bros., the Tufferizing Process cuts and forms wires with an accuracy never before attained in the manufacture of Card Clothing. The Tuffer Patented Foundation is made of four plies of specially woven fabrics bonded with oilproof glue. It is strong and stretch-resistant, yet pliable enough to go on the cylinders easily. It is flexible enough to promote the proper carding action of the wires.

Howard representatives will gladly talk over your problems and make workable recommendations. Feel free to ask for their advice.

Tuffer Tension Regulator—This new device, driven by motor or operated by hand winch, speedily applies Card Clothing with absolutely uniform tension. Using the Tuffer Tension Regulator one man and a helper can clothe the most difficult roll in an amazingly short time. Write for complete information.

Tuffer Napper Clothing — Tufferized Napper Clothing has clean, smooth needle points that produce a deep, fluffy nap . . . the Tufferizing Process of cutting and setting the wire in Napper Clothing assures uniformity.

Midgley's Improved Hand Stripping Card—Indestructible backs and handles... Steel clamps protect edges of the card and hold them securely to the back.

Howard's Special Hand Stripping Card—Ruggedly constructed...pressed-steel handle . . . made of three-ply indestructible wood for strength and light weight.

Hand Sampling Cards—Designed for dyers and wool dealers.

Brushes—For finishing. Rust-resisting wire. Velvet mills will obtain smooth, even finish to their cloth by using Howard Brushes.

HOWARD BROS. MFG. CO. WORCESTER 8, MASSACHUSETTS Phone 6-6207

Southern Plants—Atlanta, Ga., Phone Walnut 5250 Gastonia, N. C., Phone Gastonia 1162 **Branches**—Philadelphia, Pa., Phone Germantown 8-0500 Blanco, Texas

Direct Representation in Canada

SANDOZ PRESENTS *the color achievement of the month*

Bassinet Blue BY CHATHAM

And Chatham Manufacturing Company, makers of the famous Chatham Baby Blanket, employs a wide range of other colors for its *complete* line of blankets.

"Chatham Makes Good Blankets" is becoming a buy-word for American women, and Sandoz is proud to be among Chatham suppliers, furnishing dyes that Chatham can depend upon for constant quality—efficiency in handling, fastness in service.

Among recent Sandoz developments is Brilliant Alizarine Milling Blue 2RL, a new acid dyeing blue producing bright royal blue tones that are fast to light, milling, washing, perspiration and salt water. Like its well known predecessor, Brilliant Alizarine Milling Blue BL, it obtains high fastness properties without chrome. It is the ideal color for "Baby Blues" for blankets, sweater and bathing suit work—as well as for more brilliant effects in men's and ladies' wear.

For acid, chrome or direct dyes... or auxiliary chemicals... for both natural and synthetic fibres... be guided by the successful "color achievements" you have been seeing in these Sandoz advertisements. Sandoz application laboratories are located in New York, Boston, Philadelphia, Los Angeles, Charlotte, Toronto, where stocks in wide range are carried. Other branches in Chicago, Paterson and Providence.

SANDOZ CHEMICAL WORKS, INC., 61 VAN DAM STREET, NEW YORK 13, N.Y.

SAND *thinks ahead with textiles* SANDOZ

THIS IS NO. 63 OF A SERIES ON

GETTING THE MOST FROM WINDING

Information about winding designed to show improvements in winding equipment and new ideas in the winding operation

WORN THREAD GUIDES
(No. 50 Winding Machine)

When steel thread guides have been in use a long time, particularly when winding silk or other abrasive material, "thread cuts" may be found in a criss-cross pattern on the face of the guide. If the cuts are small and shallow, they will not cause much, if any damage.

However, when they become deep enough to be plainly visible, there

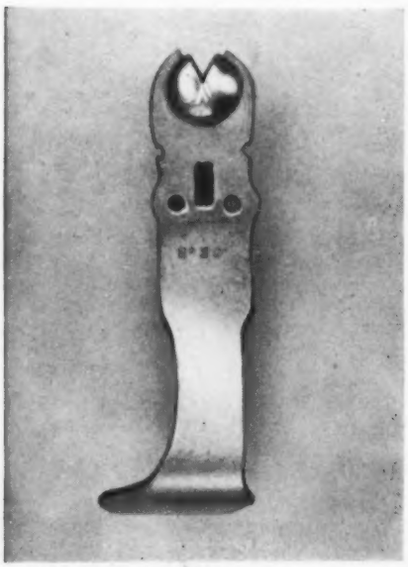


Fig. 1. Criss-cross grooves cut in guide are serious enough to necessitate replacement.

is the danger of abrasion as the yarn is pulled from side to side over the face. This danger is increased when a change is made from one yarn size to another.

There is also the possibility of stitches forming, due to the short "dwell" of yarn when it transfers from one cut to another at the end of a traverse.

Either of these faults is costly enough to warrant replacing guides before they are deeply cut.

Occasionally a guide is used that has much too wide a slot for the yarn being wound. This causes a dwell at the end of the traverse that results in an improper lay of yarn

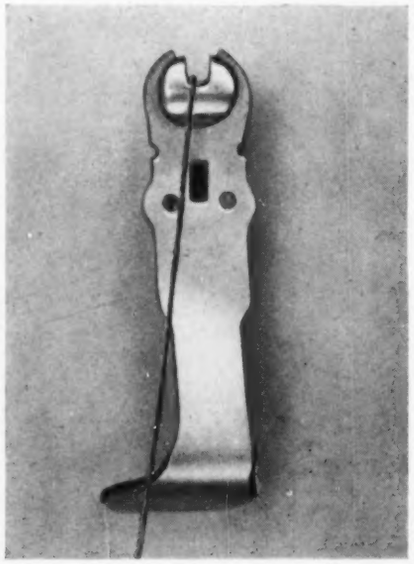


Fig. 2. The slot in this guide is too wide for the yarn. Improper lay of yarn and hard ends will result.

and in hard ends. Then, as wear takes place at the corners of the guide, there is an increasing tendency to throw stitches over the ends of the package.

Porcelain guides become very abrasive when cut, and any chafing is particularly disastrous to filament yarns.

HANDLING SWIFTS
(No. 60 Winding Machine)

Some mills have reported that their operators have difficulty in putting swifts in position where the band-type brake is used.

This can be overcome by better control of the swift and by release of the brake.

The swift should be held at the hub by the left hand. The right hand

Fig. 3. Cuts in the slot were made by the yarn and, in turn, will chafe the yarn.

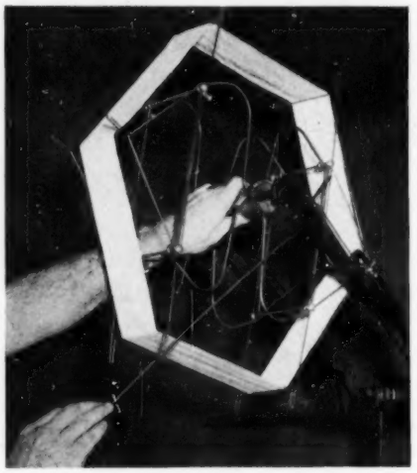


Fig. 4. Compensator is held down while swift is placed in position in the brackets.

should be used to pull the compensator down; this releases the brake and permits placing the swift in position in the brackets without difficulty.

See our Catalog in TEXTILE WORLD YEARBOOK

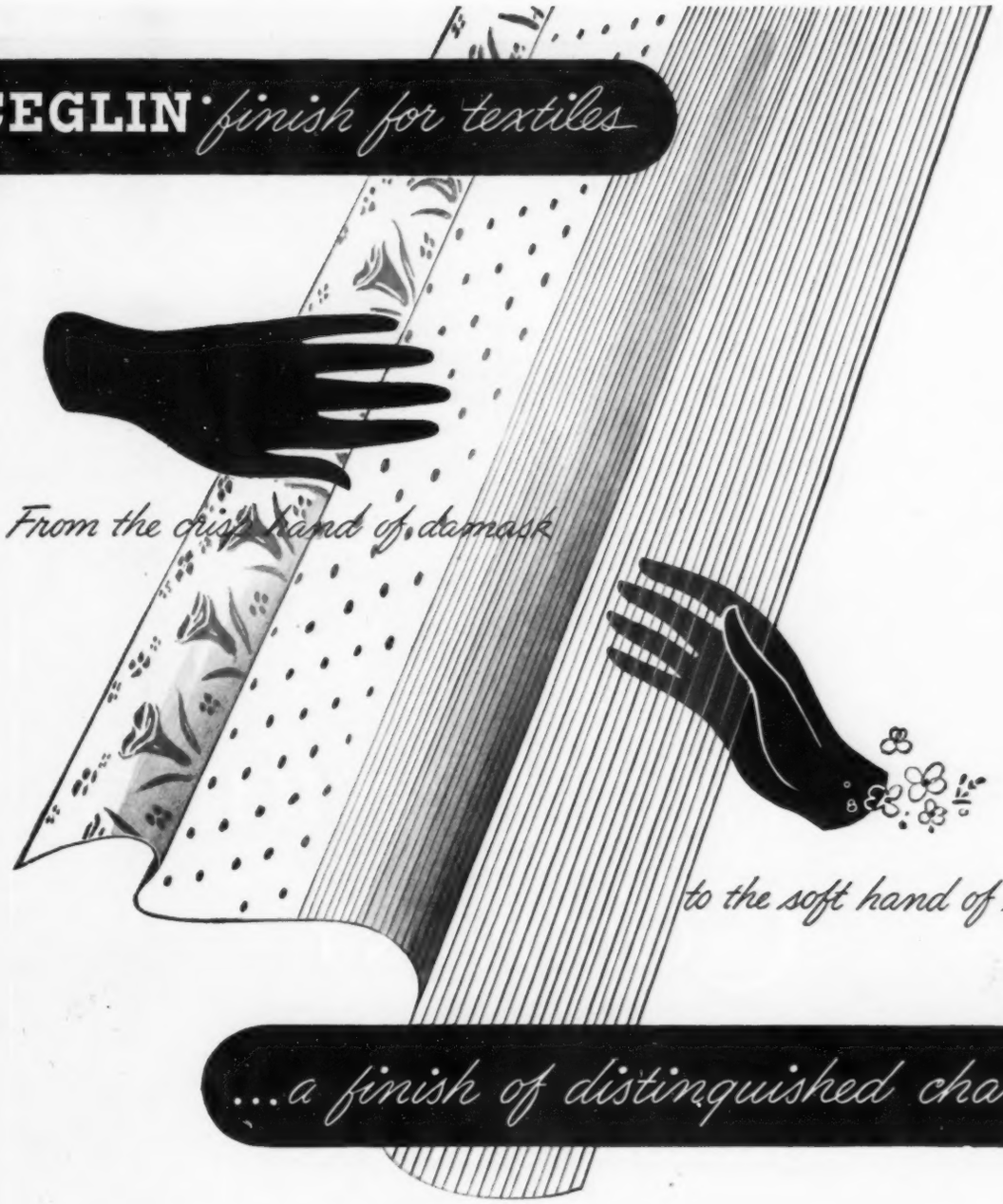
*Reg. U. S. Pat. Off. May, 1947

"THERE'S A UNIVERSAL WINDER FOR EVERY TEXTILE NEED"

UNIVERSAL WINDING COMPANY

PROVIDENCE BOSTON PHILADELPHIA UTICA CHARLOTTE ATLANTA CHICAGO LOS ANGELES MONTREAL and HAMILTON

CEGLIN finish for textiles



From the crisp hand of damask

to the soft hand of shirtings

...a finish of distinguished character

CEGLIN INCREASES THE INTRINSIC VALUE OF FABRICS

- aids in the stabilization of shrinkage and stretching
- promotes tensile strength
- increases resistance to slippage or distortion
- improves resistance to abrasion
- makes possible a wide range from crispness to softness

These qualities are then a permanent characteristic of the finished textile and remain durable through repeated laundering. Write for technical booklet giving complete directions for uses and application.

Made only by SYLVANIA DIVISION
AMERICAN VISCOSE CORPORATION
Manufacturers of cellophane and other cellulose products since 1929
General Sales Office: 122 E. 42nd Street, New York 17, N. Y. *Plant:* Fredericksburg, Va.

SYLVANIA® TEXTILE FINISHES

TEXTILE BANKING COMPANY

Inc.

Factoring Service

Puts your sales on a cash basis
Strengthens your cash position
Relieves you of credit losses

55 MADISON AVENUE • NEW YORK

Mystic Maze

(Isotherm Adsorption Apparatus)

Seen through this mystic maze of tubes and wiring is a Sinclair Research technician. What his apparatus means to users of industrial lubricants is no mystery, however.

At Sinclair Laboratories, the Isotherm Adsorption Apparatus is used constantly to determine the effectiveness of adsorbents used in lubricating oil refining procedures. Because Sinclair lubricants are made with infinite care to suit the specific requirements of your equipment, it is highly important to know exactly how adsorbents, catalysts, and other treating materials perform in a refining process.

This intricate apparatus is an assurance that Sinclair lubricant manufacture guarantees the very highest quality product. It is one more evidence of the painstaking Sinclair research and refinery control that result in outstanding lubricant performance.

Sinclair
Textile Oils

LILY WHITE OILS

In grades to suit all spindle speeds, loads and operating conditions

Light color, long life

SINCLAIR REFINING COMPANY • 630 FIFTH AVENUE, NEW YORK 20, N. Y.

SINCLAIR

Lubricants for Industry

FINEST CRUDES + EXPERT RESEARCH and MANUFACTURING CONTROL = OUTSTANDING PERFORMANCE

WASHER AND DYE PADDER at The Textileather Corp., Toledo, O., utilizes 91 corrosion resistant Inconel covered rolls. Designed by H. L. Perry, plant engineer, for handling automobile upholstery fabric. Capacity 3320 yards per hour. *Fred Christen & Sons Co.*, Toledo, built this equipment in 1940. Inconel covered rolls were fabricated by *The Youngstown Welding & Engineering Co.*, Youngstown, O.

WHEN you need a metal that will stand up in all dyeing processes, investigate Inconel*.

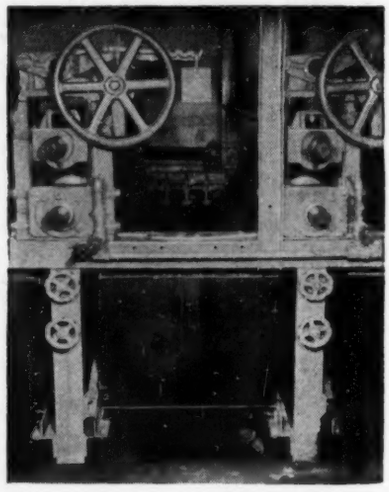
Its 80% nickel content assures resistance to strong alkalies, chlorides and reducing acids; its 14% chromium content prevents harmful attack by many oxidizing acids.

Inconel stands up against all types of dyes . . . acid and acid chrome . . . direct, vat, sulfur and developed colors. It resists corrosion by dilute hypochlorites and by sizing or other compounds and solutions used to impregnate fabrics. Peroxide bleaches have little effect on Inconel, and the alloy itself — unlike many other metals — does not harmfully accelerate decomposition of the bleach.

Having greater strength and toughness than structural steel, and possessing excellent fabricating and welding properties, Inconel makes possible the construction of extremely rugged, long-lived equipment.

Inconel is available in standard mill forms . . . in sheet and strip . . . in rod, bar, plate and tubing. Let's not forget castings, either. They're available too. And for equipment requiring plate thicknesses of 3/16" and heavier, you can get Inconel-clad steel . . . at a substantially lower price than solid Inconel.

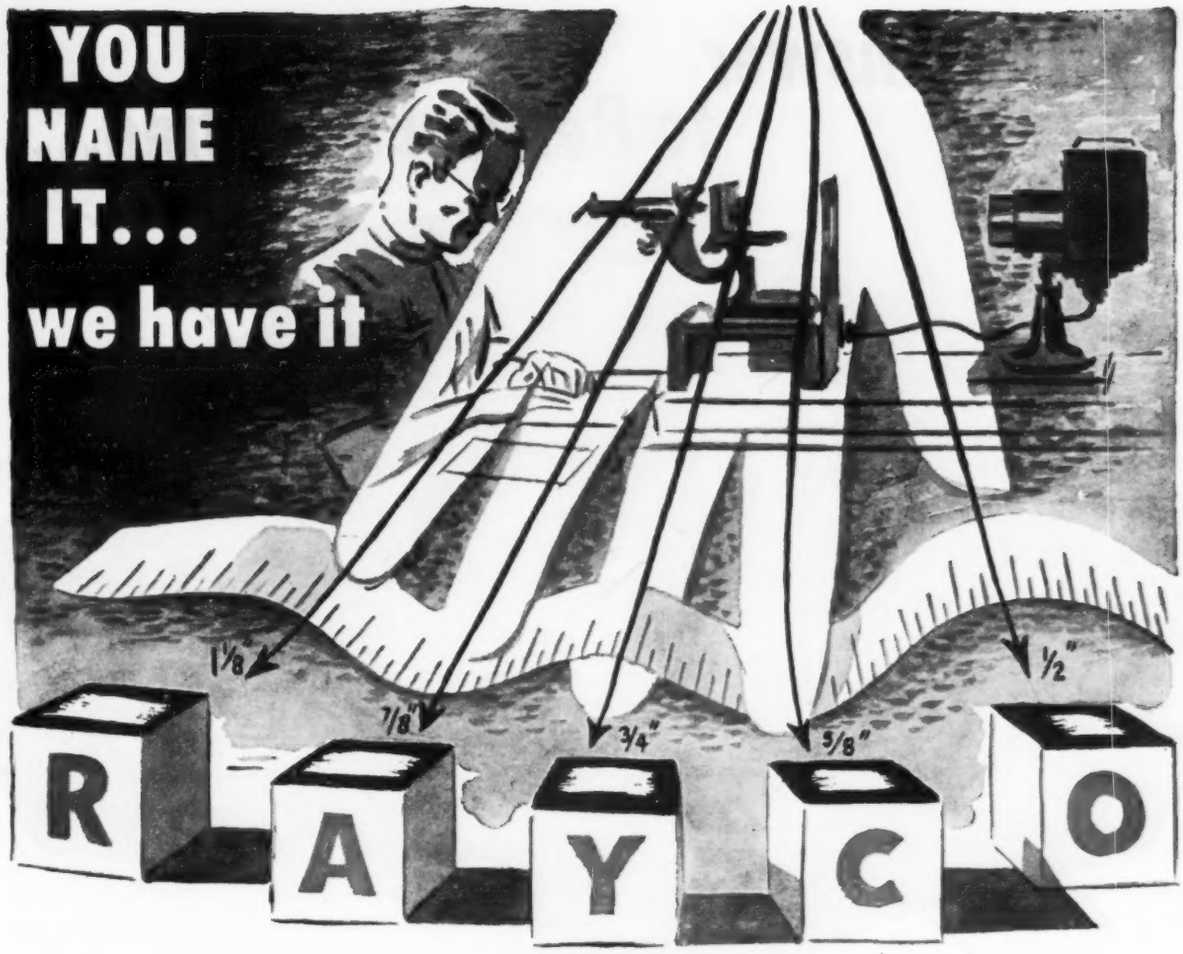
Detailed information on corrosion resistance, mechanical and working properties, and typical uses of this versatile nickel alloy is contained in Technical Bulletin T-7, *Engineering Properties of Inconel*. A copy is yours for the asking. Drop us a line on your letterhead, and we'll see that it's sent promptly. *Reg. U. S. Pat. Off.



CLOSE-UP OF ONE SECTION of the eight-box washer. Welded tank is made of ¼" Inconel-clad steel plate, and contains 7 idler rolls of seamless Inconel tubing, 4" OD x .120 wall x 74⅛" face.

THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL STREET, NEW YORK 5, N. Y.

INCONEL
80 NICKEL — 14 CHROMIUM



Through laboratory testing we are able to supply you with the exact fibers or fiber blends you specify. Our close contacts with our own and our contracted mills allow us to inaugurate quality control and correct classification at the source of supply.

We have on hand a wide variety of fibers—cotton; cotton and rayon blends; rayon, aralac and cotton blends; and assorted rayon scraps. We can furnish these in comber noils, card strips, spinners and rovings (machined and unmachined), colored card strips, soiled cards, and woven cuttings.

Tell us *what* you want in staple length, color, strength, percentage of foreign matter, resiliency and drag and we will quote you promptly on the exact material to do the best job for you. Wire or write us today.

The RAILWAY SUPPLY & MFG. CO. and Affiliates

Specialists in Grading, Marketing and Processing Cotton and Synthetic Fibers

General Offices: Cincinnati, Ohio

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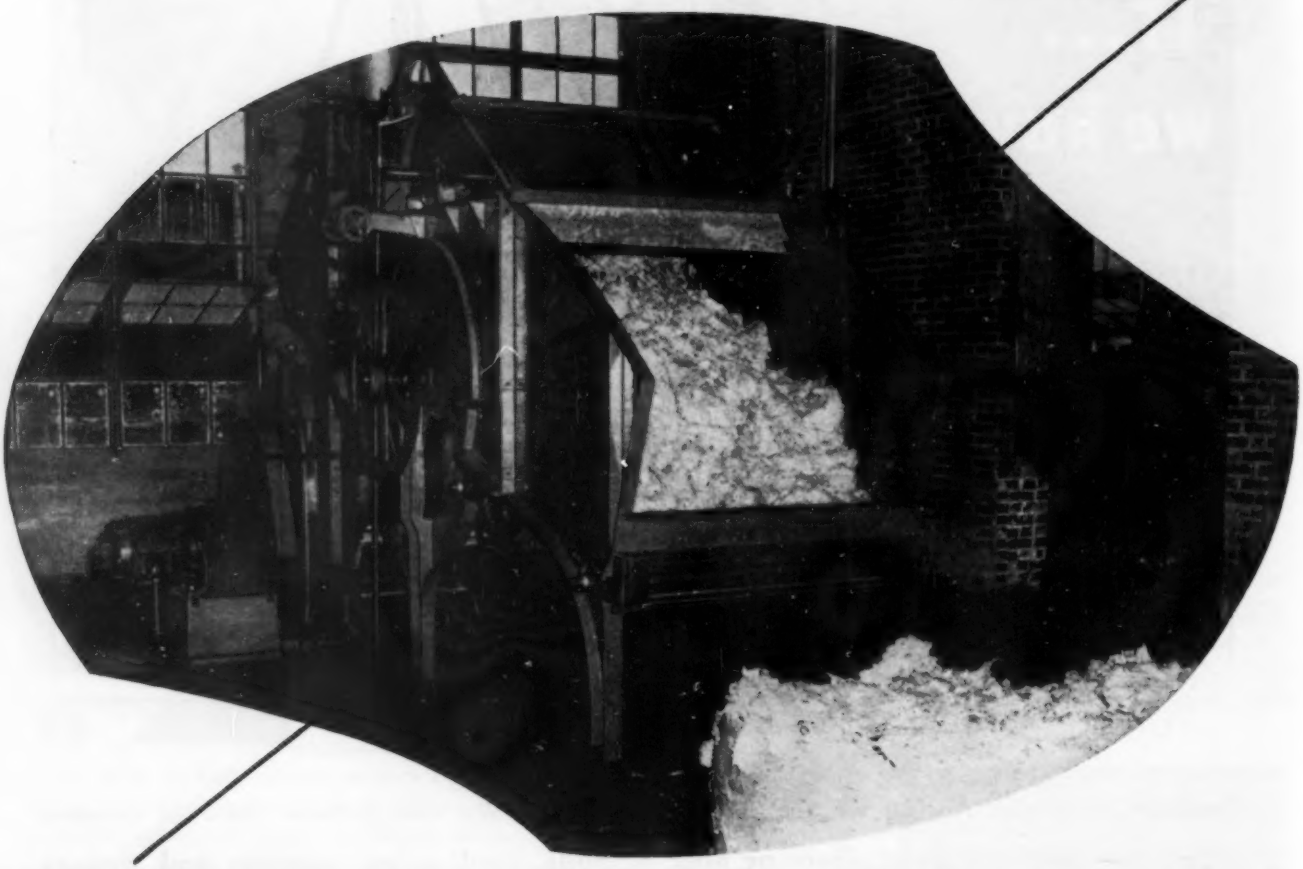
RAYCO **COTTON & SYNTHETIC FIBERS**

The Answer to Better Extracting...



PROCTOR Continuous Extracting Unit for Raw Stock

Here are the highlights of the operation of this modern unit, which replaces the laborious intermittent method of centrifugal extracting.

An automatic feed delivers a uniform amount of wet stock to the squeeze rolls. A vibrating plate, arranged between the self-feed and the squeeze rolls, feeds the layer of wet stock into the nip of the rolls in such a manner as to prevent droppage of wet stock or bunching of the material as it goes through the rolls.

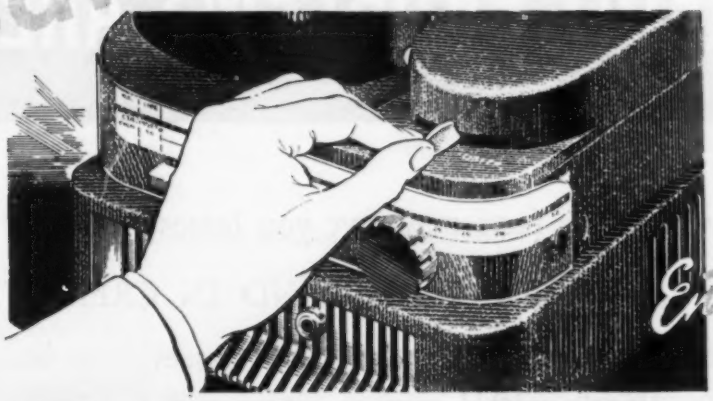
Here are the results: There is better opening of matted stock . . . wet spots in dried stock are eliminated . . . production is constant and very high . . . time losses are virtually eliminated . . . operating costs are kept to a minimum.

The initial price of this modern Proctor unit is probably higher than that of any other extracting equipment made. However, when you consider that with it you can combine increased production with improved quality—it is obvious that the Proctor continuous extracting unit will pay for itself many times over. Even with the somewhat higher initial investment, viewed over the long run, Proctor equipment is actually the least expensive.

PHILADELPHIA 20, PA.

PROCTOR & SCHWARTZ INC.

compare



Entirely New

THE

AUDOGRAPH

Electronic SOUNDWRITER

. . . with each of the older dictation machines now in use

It is our opinion, and we think that of leading engineering and office management authorities, that any dictation instrument without these important features is obsolete:

Compare

AUDOGRAPH'S PAPER-THIN PLASTIC DISCS
With bulky, old-fashioned, breakable cylinders.

Compare

AUDOGRAPH'S ONE HOUR DICTATION CAPACITY
With the usual few minutes.

The AUDOGRAPH is available NOW on prompt delivery schedules. Call your local office—ask for an AUDOGRAPH demonstration . . . itself a unique experience.

Compare

AUDOGRAPH'S COMPLETELY SHOCKPROOF RUGGEDNESS
With "handle with care" delicate instruments.

Compare

AUDOGRAPH'S SELF-CONTAINED COMPLETE UNITS
With systems requiring complicated "extra" equipment.

Compare

AUDOGRAPH'S LIGHT WEIGHT—PORTABILITY
With clumsy, heavy, awkward designs.

Compare

AUDOGRAPH'S RADIO-PERFECT VOICE MODULATION
With older, flatter-toned forms.

The Lanier Company

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ATLANTA

RALEIGH	**SAVANNAH**	**MOBILE**	**NASHVILLE**	**KNOXVILLE**
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GREENVILLE	**GREENSBORO**	**ORLANDO**	**KINGSPORT**	**JOHNSON CITY**

CREDIT PROBLEMS ARE BACK!

Knowing these facts may save you losses in 1947!

DO YOU KNOW THE TREND IN CREDIT LOSSES?

During the last few months, credit losses have been greater than in any month since 1941.

ARE PAST DUE ACCOUNTS INCREASING?

Studies show that past due accounts are greater today than in any period since 1941.

HAVE YOU RECHECKED YOUR CREDIT RISKS?

Continued rechecking of credit risks may prevent unexpected loss due to changing inventory values.

WHERE ARE THE LARGEST CREDIT LOSSES?

Records show that the largest credit losses are often the result of extending credit to customers who enjoy unlimited confidence and yet furnish limited information.

WILL YOU SUFFER HEAVY CREDIT LOSSES?

The facts show that credit losses are back. Yet, you can eliminate your chance of loss now by letting James Talcott, Inc., purchase your accounts receivable and thereby assume the risk. And what's more, factoring your accounts will give you additional operating capital, if you need it, and more time to devote to the problems of buying, manufacturing, selling and distributing.

JAMES TALCOTT, INC.

FACTORS

Founded 1854

225 Fourth Avenue, New York 3, N.Y.

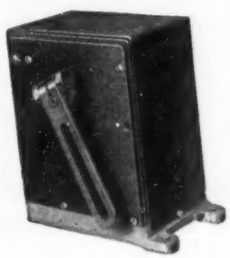
SOUTHERN CORRESPONDENT: CLARENCE KNOWLES, 1734 CANDLER BUILDING, ATLANTA 3, GEORGIA

AUTOMATIC *Electrically Operated* CONTROLS

for all types of
HEATING
HUMIDIFYING
OR
AIR
CONDITIONING
installations

by

BARBER-COLMAN



1. MOTOR-OPERATED VALVES for on-off or proportioning control of high or low pressure steam and hot or chilled water.

2. REMOTE BULB THERMOSTATS and MICROTHERMS for controlling system temperatures in heating or air conditioning installations of all types and sizes.

3. Room-type HYGROSTATS for controlling the operation of humidifying equipment to maintain the desired amount of relative humidity.

4. Room-type THERMOSTATS for maintaining uniform temperature in offices, weave rooms, spinning rooms, warehouses, and other buildings.

5. Room-type MICROTHERMS for accurate automatic control of humidifying and air-conditioning systems.

6. Two-position DAMPER CONTROL MOTORS having many applications for operation of dampers in duct systems.

7. Heavy-duty, oil-submerged DAMPER CONTROL MOTORS in a wide variety of types and sizes for two-position, multi-position, or proportioning service.

Write today for further information on Barber-Colman Controls. A nation-wide engineering and service organization stands ready to help solve your control problems.

BARBER-COLMAN COMPANY

ROCKFORD, ILL. • BOSTON, MASS. • GREENVILLE, S. C. • GREENSBORO, N. C. • ATLANTA, GA.

FAIRBANKS-MORSE

A time-honored name in scales

★ ★ ★ ★ ★

Long years of manufacturing experience—of lastingly accurate weighing service—that is the background you will find in scales bearing the Fairbanks-Morse name.

The services they perform, the time and money they save, have given them an envied reputation for dependable quality.

Skilled workmanship, quality materials, and unending research have combined to make this possible . . . will continue to give Fairbanks-Morse Scales a proud position of leadership in every field of industry.

Fairbanks, Morse & Co., Chicago 5, Illinois.

Fairbanks-Morse

A name worth remembering

Diesel Locomotives
Diesel Engines
Generators • Motors
Pumps • Scales
Magnetos • Stokers
Railroad Motor Cars
and Standpipes
Farm Equipment

It's the SIDE of a V-Belt

That GRIPS the Pulley
Picks Up the LOAD
and Really Gets the WEAR!

Diagram of V-Belt in Sheave Groove

Every ounce of load a V-Belt carries must *first* be picked up by the *sides* of the belt. Clearly so, because *only* the *sides* come into contact with the pulley! The sides do all the *GRIPPING* on the pulley. They get all the wear against the sheave-groove wall. The sides *pick up* the load. They transmit that load to the belt as a whole. And then, once more, the sides —and the sides *alone*—grip the driven pulley and *deliver* the power to it.

That is why you have always noticed that the sidewall of the ordinary V-Belt is the part that wears out first.

That's Why the CONCAVE SIDE
A GATES PATENT

is ★ IMPORTANT to YOU!

Clearly, since the sidewall is the part that wears out first, anything that prolongs the life of the sidewall will lengthen the life of the belt—and that is why the patented Concave Side is important to you.

The simple diagrams on the right show exactly why the ordinary, straight-sided V-Belt gets excessive wear along the *middle* of the sides. They show also why the Patented Concave Side greatly reduces sidewall wear in Gates Vulco Ropes. That is the simple reason why your Gates Vulco Ropes are giving you so much longer service than any straight-sided V-Belts can possibly give.

Straight Sided V-Belt — Fig. 1

How Straight Sided V-Belt Bulges When Bending Around Its Pulley — Fig. 1-A

You can actually feel the bulging of a straight-sided V-Belt by holding the sides between your finger and thumb and then bending the belt. Naturally, this bulging produces excessive wear along the middle of the sidewall as indicated by arrows.

Gates V-Belt with Patented Concave Sidewall — Fig. 2

Showing How Concave Side of Gates V-Belt Straightens to Make Perfect Fit in Sheave Groove When Belt Is Bending Over Pulley — Fig. 2-A

No Bulging against the sides of the sheave groove means that sidewall wear is evenly distributed over the full width of the sidewall—and that means much longer life for the belt!

★ More Important NOW That STRONGER Tension Members are Used

Now that Gates *Specialized Research* has resulted in V-Belts having much stronger tension members — tension members of Rayon Cords and Flexible Steel Cables, among others—the sidewall of the belt is often called upon to transmit to the pulley much heavier loads. Naturally, with heavier loading on the sidewall the life-prolonging Concave Side is more important today than ever before!

THE GATES RUBBER COMPANY Denver, U. S. A.
"World's Largest Maker of V-Belts"

478

GATES VULCO ROPE DRIVES

Engineering Offices and Jobber Stocks IN ALL INDUSTRIAL CENTERS of the U. S. and 71 Foreign Countries

Gates

THE MARK OF SPECIALIZED RESEARCH

It's Always Fair Weather at Wamsutta with AMCO EVAPORATIVE COOLING

WAMSUTTA'S fame for quality is not accidental. It results from deliberate measures to assure a superior product. Important among these advantages is an AMCO Humidification and Cooling System.

By reducing excessive temperatures and holding humidity at correct levels—an easy routine with AMCO—ideal processing "weather" prevails in every department. Also important to efficient production is greater comfort for the worker.

Relative humidity is accurately maintained by introducing atomized water spray, and the frictional heat of high speed machines is absorbed by evaporation of this moisture in conjunction with carefully controlled air-flow. No expensive changes are necessary—no air ducts to install—no jump in maintenance costs.

What an AMCO System has done for many leading mills it can do for you. An AMCO engineer will gladly show you how you can modernize your plant simply and economically for better product quality with increased output.

FEATURES OF AMCO HUMIDIFICATION AND COOLING.

- Reduces excessive temperature and holds relative humidity at point best suited to fibre and process.
- Speeds production in high friction (heat) areas.
- Assures evener yarn counts and increases breaking strength.
- Gradually increases regain for good roving and consequent better spinning.
- Drafting of fibres smoother and more compact.
- Waste and fly greatly reduced.
- No cumbersome ducts to require cleaning and obstruct light.
- Easier to install—minimum disruption.
- High flexibility to meet changing room conditions.
- Minimum maintenance.
- Amco Evaporative Cooling utilizes your present humidification system.
- Increases worker comfort.

AMCO

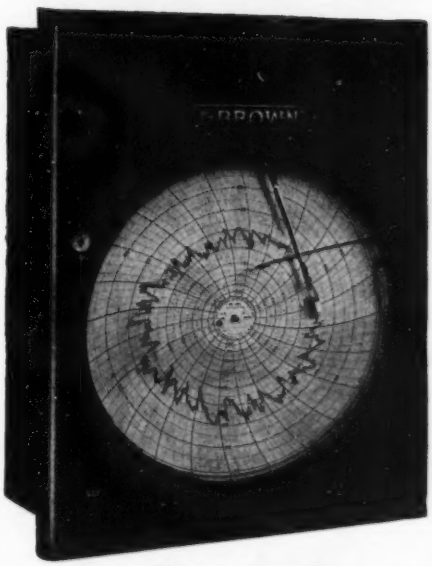
HUMIDIFICATION and COOLING

AMERICAN MOISTENING CO. AFFILIATED WITH GRINNELL COMPANY, INC., PROVIDENCE, R. I. • BOSTON • ATLANTA • CHARLOTTE

grasp these savings

in FUEL DOLLARS !

STEAM ACCOUNTING LOWERS COSTS IN TEXTILE MILLS



Brown Electric Recording Integrating Flow Meter

CONSIDER the savings in fuel dollars made possible by just a few percent reduction in steam waste. In textile mills, where steam costs are unusually high, savings made through the use of the Brown Steam Accounting System are considerable.

Brown Totalizing Flow Meters are the basis of the Brown Steam Accounting System. These flow meters enable you to figure steam costs for every department. They show where the steam is going—and where it is being wasted. Permanent chart records show rate of flow, enabling you to correlate steam load with textile production. The automatic planimeter pen records the amount of flow, making it possible to analyze steam consumption during any period. The integrator totalizes the flow.

Many textile mills report substantial savings in fuel dollars after installation of the Brown Steam Accounting System. Let us show how it can do the same for you. Write for complete information. THE BROWN INSTRUMENT COMPANY, a division of Minneapolis-Honeywell Regulator Company, 4492 Wayne Avenue, Philadelphia 44, Pa. Offices in all principal cities.

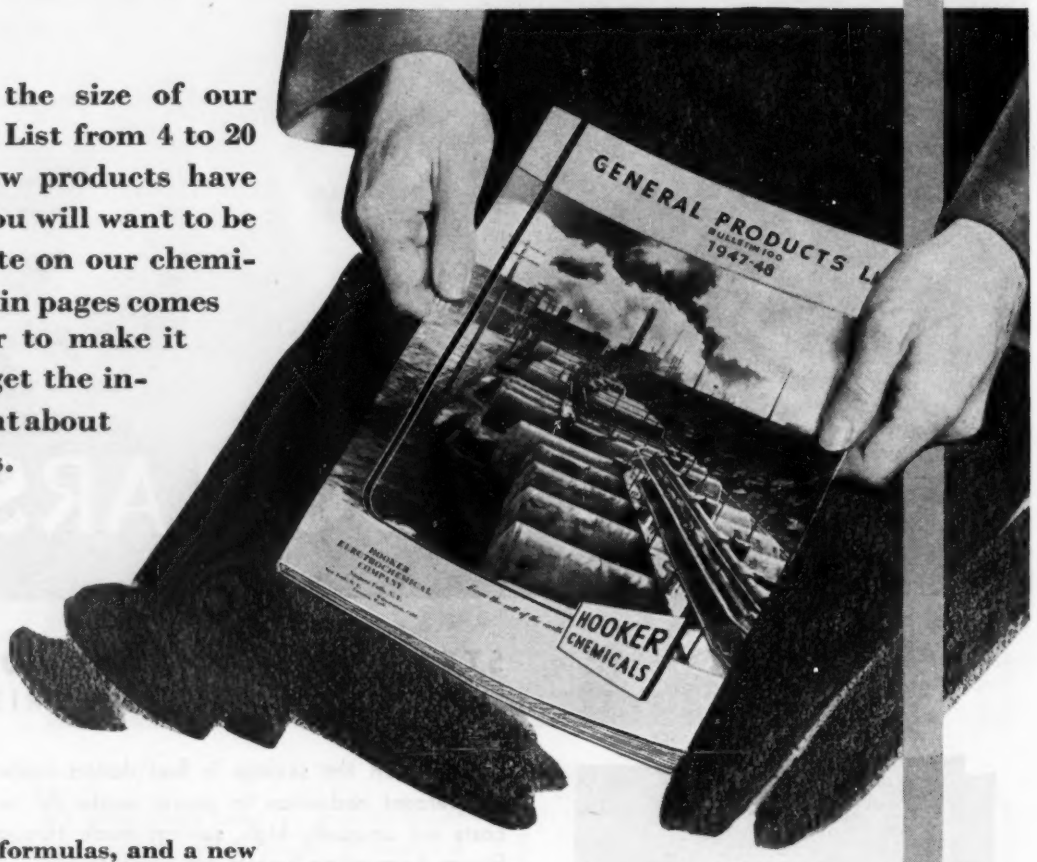
TORONTO, CANADA
AMSTERDAM, HOLLAND BRUSSELS, BELGIUM LONDON, ENGLAND
STOCKHOLM, SWEDEN

BROWN FLOW METERS

. . . MINNEAPOLIS - HONEYWELL CONTROL SYSTEMS . . .

Get the Facts on Hooker Chemicals from our New General Products List

We've increased the size of our General Products List from 4 to 20 pages. Several new products have been added and you will want to be brought up to date on our chemicals. The increase in pages comes from an endeavor to make it easier for you to get the information you want about Hooker Chemicals.



Larger type, graphic formulas, and a new format facilitate your finding the chemicals in which you are interested. Included are description, principal physical and chemical properties, uses, and shipping containers. This new products list also describes briefly the various chemical processes and facilities which Hooker has available for industry.

You who are not yet acquainted with Hooker Chemicals will find this new Products List an excellent introduction to a source for industrial chemicals of high purity; it will also pay you to refer to this Bulletin whenever you need chemicals. Feel free, too, to call on Hooker's Technical Staff for advice and help on the application of Hooker Chemicals to your problems.

The words "Bulletin 100" on your business letterhead will bring you a copy of the Hooker General Products List.

HOOKER CHEMICALS

HOOKER ELECTROCHEMICAL COMPANY

14 Forty-Seventh Street, Niagara Falls, N. Y.
New York, N. Y. Wilmington, Calif.
Tacoma, Wash.

From the salt of the earth

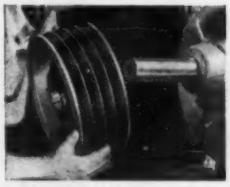
Caustic Soda **Muriatic Acid** **Sodium Sulfide**
Paradichlorbenzene **Chlorine** **Sodium Sulfhydrate**

Quick Trick

Just tighten three cap screws to lock this sheave to the shaft! No filing, reaming or hammering . . . no wobble.

Save time . . . prevent damage to motor and shaft . . . with TEXROPE

"MAGIC-GRIP" SHEAVES



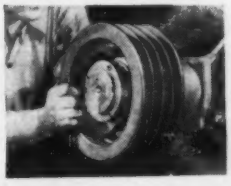
QUICKLY ALIGNED

Because it slides freely on the shaft, it's easy to line up the sheave accurately — for good alignment, smooth operating, longer belt life. It pays to standardize on "Magic-Grip" sheaves.

See Sweet's Catalog

SLIPS ON EASILY

Comes completely assembled. Tapered split bushing provides clearance for even over-size shafts — it's compressed and locked to the shaft with an all-around clamp grip by tightening three cap screws. Can be removed as easily as it goes on.



HERE'S A SHEAVE that goes on *fast*. Less labor cost — less downtime. But that's only part of the saving. There's no forcing or hammering to damage motor bearings — no set screws to mar the shaft. Locks on with a powerful clamp grip that prevents backlash or wobble. And . . . it costs no more than a standard heavy duty sheave of comparable materials and precision workmanship.

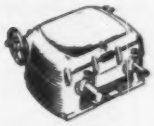
Texrope "Magic-Grip" sheaves are made in diameters from 5.4 to 48 inches, two to 12 grooves. They're engineered by Allis-Chalmers, originators of the multiple V-belt drive. For specifications, prices, call your nearest A-C dealer or office. ALLIS-CHALMERS, MILWAUKEE 1, WISCONSIN. A 2221

TEXROPE .. Greatest Name in V-Belt Drives

"Super 7" V-BELTS
Five Types — Sizes to suit every power transmission job.

Texsteel, Texdrive, "Magic-Grip"
— sheaves in a full range of sizes, grooves.

"Vari-Pitch" SHEAVES
Exact variations in speed, stationery or motion control.



SPEED CHANGERS
Speed variations up to 375% at the turn of a crank.

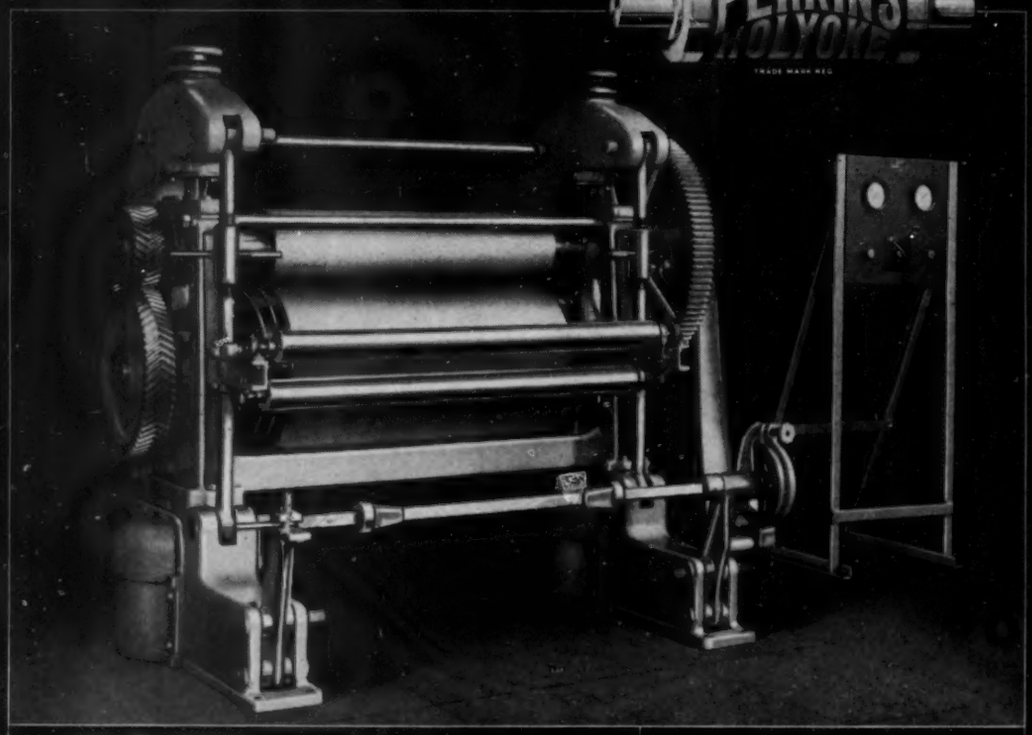
ENGINEERING
Finest V-Belt engineering talent in the world—at your call.

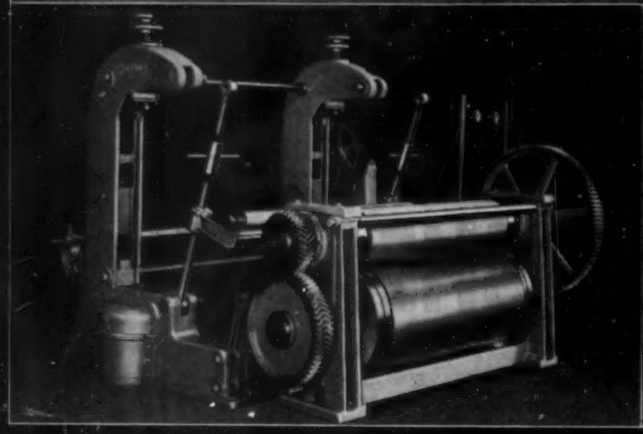
TEXROPE "Super 7" V-Belts result from the cooperative research of two great companies — Allis-Chalmers and B. F. Goodrich. They are sold only by A-C.

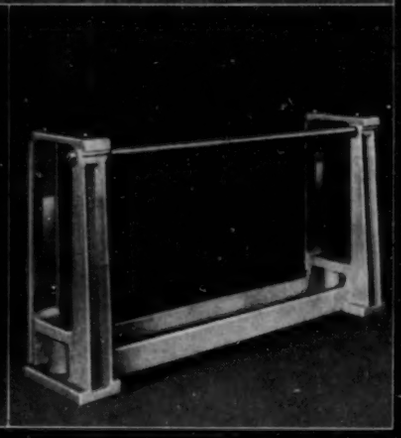
ALLIS-CHALMERS

One of the Big 3 in Electric Power Equipment — Biggest of All in Range of Industrial Products

1847 1947 A CENTURY OF SERVICE to Industry THAT MADE America Great





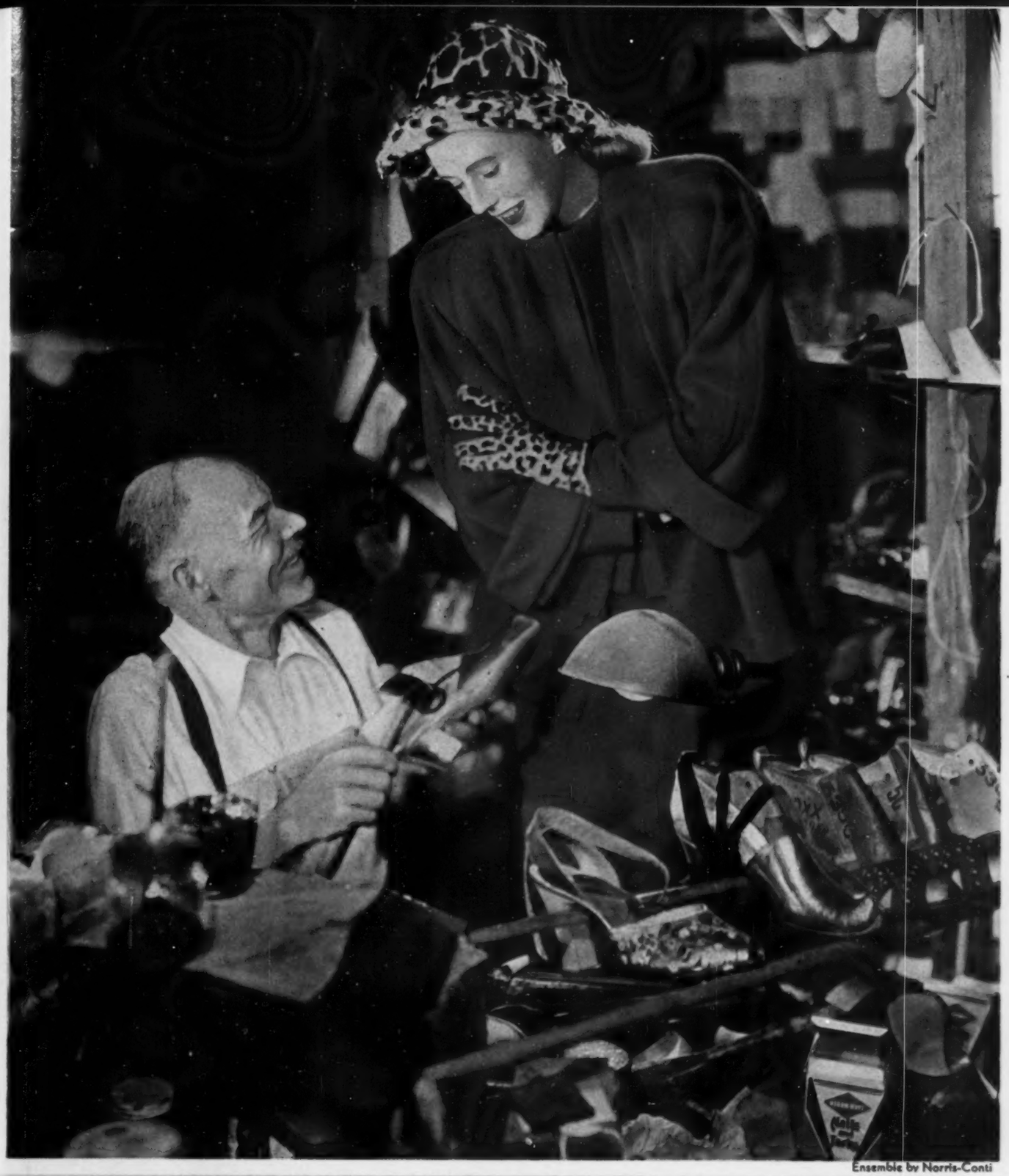


EVERY PERKINS CALENDER is custom-made to meet local conditions, engineered for marked effectiveness, convenience, simplicity. For example, this two-roll 46" embossing calender shown with subframe and subframe removed. Foxboro air-pressure system. Rolls mounted in Timken anti-friction bearings. Helical roll connecting gears. There is no substitute for PERKINS quality.

B. F. PERKINS & SON, Inc.

HOLYOKE, MASS., U.S.A.

LARGEST MANUFACTURERS OF CALENDER ROLLS IN THE WORLD



Ensemble by Norris-Conti

Dyes for coatings, suitings and custom shoe leathers, of course! But what of rouge, lipstick, face powder and nail enamel?

Whatever you wear, use or see it's likely to be colored with National Aniline dyes. For National alone makes every class of aniline dye and color...has had longer and broader application experience than any other American producer.

Specify National Aniline Technical Service and Dyes for assured results.

WHEREVER COLOR IS USED

National Aniline

DIVISION OF

ALLIED CHEMICAL & DYE CORPORATION

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Financing production and distribution with maximum efficiency, and at a minimum of risk, is best accomplished through the financial and credit checking services of a strong factoring organization.

Increased sales volume without increased fixed invested capital, accelerates turnover and should yield greater profits.

Write today for details.

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Check Credits • Cash Sales • Absorb Credit Losses

FOR PAILS, BUCKETS, TUBS AND TANKS...

nothing equals Stainless Steel

EVEN in these simple but important dye house appliances, Stainless Steel has proved its outstanding superiority for improving production and lowering costs.

- **It keeps colors truer and brighter.**
- **It makes faster change-overs possible.**
- **It prevents bleeding and contamination.**
- **It drastically reduces cleaning time and labor.**
- **It holds replacement costs to the very minimum.**

In one plant, for example, acid-handling buckets were formerly used up at the rate of 4 to 8 dozen per month. Now, made of Stainless Steel, they last so much longer that replacement costs have been cut 75%.

In dye jigs, acid agers, mixing tanks, etc. the advantages of using Stainless Steel are equally apparent and profitable. A marked increase in over-all plant efficiency has been common experience.

Why not plan now for the gradual replacement of your worn-out and obsolete equipment—with Stainless Steel construction? And if you want to insure the *biggest* return on your investment make it a point to see that it is made of U·S·S Stainless Steel.

This *perfected,* service-tested Stainless is so uniform in composition, in finish and fabricating qualities that it permits the widest latitude in design and allows the use of the most advanced manufacturing techniques. The result—equipment that will deliver the utmost in performance.

LISTEN TO . . . ***The Theatre Guild on the Air,*** presented every Sunday evening by United States Steel. American Broadcasting Company, coast-to-coast network. Consult your newspaper for time and station.

USS STAINLESS STEEL UNITED STATES STEEL

U·S·S STAINLESS STEEL

AMERICAN STEEL & WIRE COMPANY, *Cleveland, Chicago and New York*
CARNEGIE-ILLINOIS STEEL CORPORATION, *Pittsburgh and Chicago*
COLUMBIA STEEL COMPANY, *San Francisco*
NATIONAL TUBE COMPANY, *Pittsburgh*
TENNESSEE COAL, IRON & RAILROAD COMPANY, *Birmingham*
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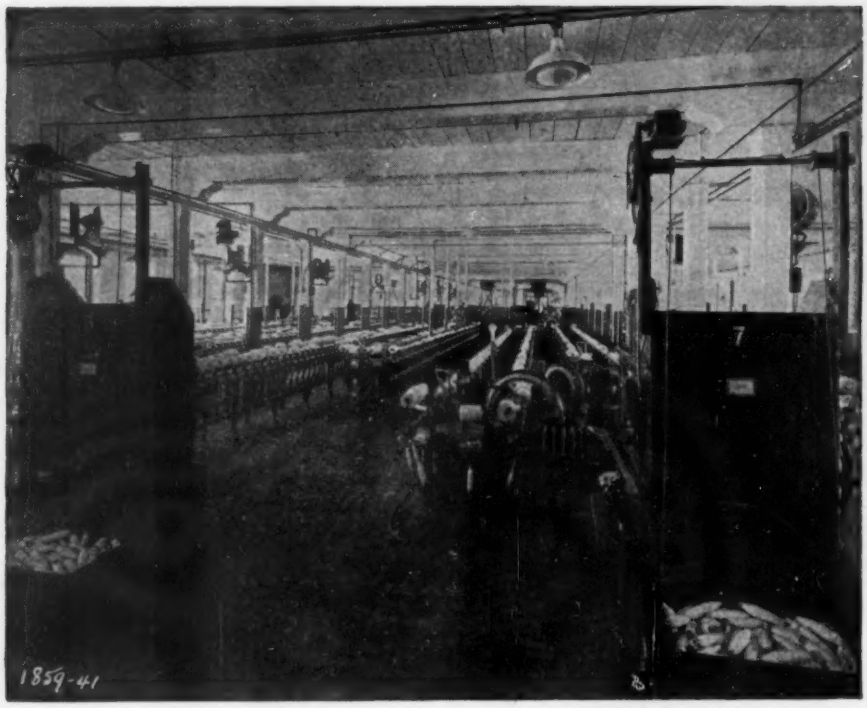
UNITED STATES STEEL

ABBOTT AUTOMATIC WINDERS



The operations required to run a cone winder are:

1. **Pick up bobbin**
2. **Find end**
3. **Put bobbin in position**

---

4. **Find end on cone**
5. **Tie ends**
6. **Start winding head**
7. **Hold thread out of traverse until cone is up to speed.**

The Abbott Automatic Winder requires only the first three operations to be done. The last four operations are wholly automatic.

Also, instead of a constant parade around the machine, the operator stays in one position sitting or standing.

Also, the full and empty bobbins and cones are within easy reach in large supply.

The result is a production three times that of the conventional stationary spindle non-automatic winder.

Average hourly production per operator 900 to 1000 bobbins per hour

2 oz. bobbin	**112 lbs. hour**
4 oz. bobbin	**224 lbs. hour**
6 oz. bobbin	**338 lbs. hour**
8 oz. bobbin	**448 lbs. hour**

ABBOTT MACHINE COMPANY

WILTON, N. H.

Southern Representative, L. S. Ligon, Greenville, S. C.

for REDS of radiant beauty

AMANIL NAPTHOLS ★ FAST COLOR SALTS OR BASES ★ STABILON

Ideal combinations for perfect coloring throughout the red range and into gold . . . everything you need for complete satisfaction in Napthol dyeing and printing. » » » Let us demonstrate the A.A.P. way to best results with the Napthol process; just call our nearest office, and an A.A.P. technician will gladly visit your plant.

AMERICAN ANILINE PRODUCTS, INC., 50 Union Square, New York, N. Y. — Plant: Lock Haven, Pa.

Branches: Boston, Mass.—Providence, R. I.—Philadelphia, Pa.—Charlotte, N. C.—Chicago, Ill.—Los Angeles, Cal.—Chattanooga, Tenn.—Dominion Anilines & Chemicals Ltd.—Toronto, Canada—Montreal, Canada.

Multiply the **USEFUL HOURS** of your recreational facilities

.... by floodlighting your field for NIGHT games

Crouse-Hinds Type MUA Alumalux Floodlight

Crouse-Hinds Type MDB-14 Floodlight

More people can participate in your outdoor athletic program and many more of them will become interested spectators when your field is lighted with

CROUSE-HINDS FLOODLIGHTS

A well lighted field that extends play-time into night-time will work wonders in boosting employee enthusiasm. The resulting good-will pays dividends on the modest investment that is required.

Pioneer in sports lighting, Crouse-Hinds Illumination Department has a wealth of experience acquired through more than twenty years of planning the most efficient lighting for all types of fields from small playgrounds to great stadiums. This know-how is at your service. Crouse-Hinds illuminating engineers will gladly recommend the proper selection and arrangement of floodlights for any application.

Send for the latest Crouse-Hinds Sports Lighting Bulletin. It contains the National Electrical Manufacturers' Association standard floodlight layouts for a large number of sports, from horseshoe courts to baseball fields.

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Our 50th Anniversary 1897 – 1947

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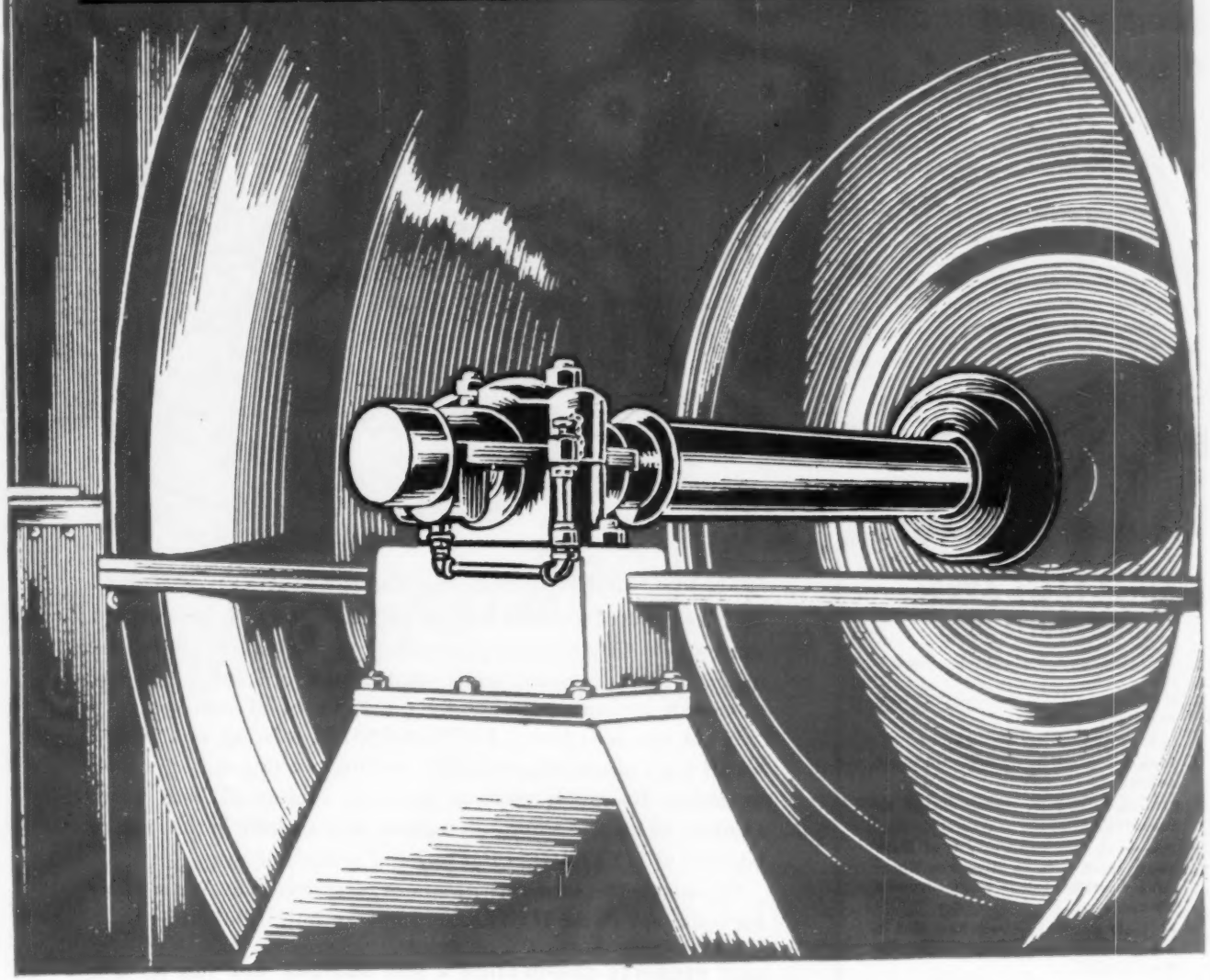
CROUSE-HINDS COMPANY OF CANADA, LTD., *Main Office and Plant:* TORONTO, ONT.

FLOODLIGHTS · AIRPORT LIGHTING · TRAFFIC SIGNALS · CONDULETS

"BEARINGS RUN 10% COOLER



since changing to Tycol industrial greases

TYCOL
INDUSTRIAL LUBRICANTS

Boston • Charlotte, N. C.
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TIDE WATER ASSOCIATED OIL COMPANY
17 BATTERY PLACE - NEW YORK 4, N. Y.

"Production speeded 65%...
Repair costs slashed 30%...
Deposits eliminated...
Highly stable...
Consumption cut 25%..."

This report from a plant engineer typifies the kind of trouble-free, cost-cutting lubrication provided by Tycol Industrial greases. They contain more high-grade cylinder oil—less soap—which means better performance in every application.

For aid in the selection of Tycol greases best suited for your particular needs, contact your nearest Tide Water Associated office today.

LUBRICATION—"ENGINEERED TO FIT THE JOB"

Has all the advantages of soap without the disadvantages

HYTERGEN BM

the Modern DETERGENT

Superior detergency, yet highly resistant to hard water, acid, alkalis, etc.

QUICK FACTS ABOUT HYTERGEN BM

1. Possesses exceptional scouring action.
2. It is an excellent wetting-out and penetrating agent.
3. Is an outstanding emulsifier.
4. May be used in acid or alkaline solutions.
5. Is unaffected by hard water or metallic salts.
6. Prevents the separation of lime soaps and acts to disperse lime-soap particles which have already formed.
7. Is itself neutral in reaction and is effective in liquors containing no free alkali.
8. Can be used on the most delicate fabrics and colors to good advantage.
9. Used to scour wool fabrics of open weave or soft spun yarns without any danger of felting.
10. Is a valuable assistant in fulling because of its penetrating and emulsifying properties.
11. Has desirable leveling action in dyeing.

HYTERGEN BM is the *modern* surface-active agent possessing all the advantages of soap and none of its disadvantages. It has splendid wetting-out, dispersing and penetrating properties and yet is highly resistant to hard water, acids, alkalis, salts, and other reagents commonly encountered in the wet processing of all materials.

In the textile industry, HYTERGEN BM is being widely used for all types of soaping, scouring, washing, wetting-out or boil-off operation. Its use is positive insurance against all hard water troubles. In many instances, it replaces soap entirely in the ratio of 1 pound of HYTERGEN BM to 2 to 5 pounds of soap.

Investigate this *modern* synthetic organic detergent. Write today for your copy of the HYTERGEN BM Technical Bulletin.

HART PRODUCTS CORPORATION • 1440 Broadway, New York 18, N. Y.

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RAYON OILS & SIZES	SPLASHPROOF COMPOUNDS
NYLON OILS & SIZES	DELUSTRANTS
KIER BLEACHING OILS	LEVELING AGENTS
FINISHING OILS	CATIONIC SOFTENERS
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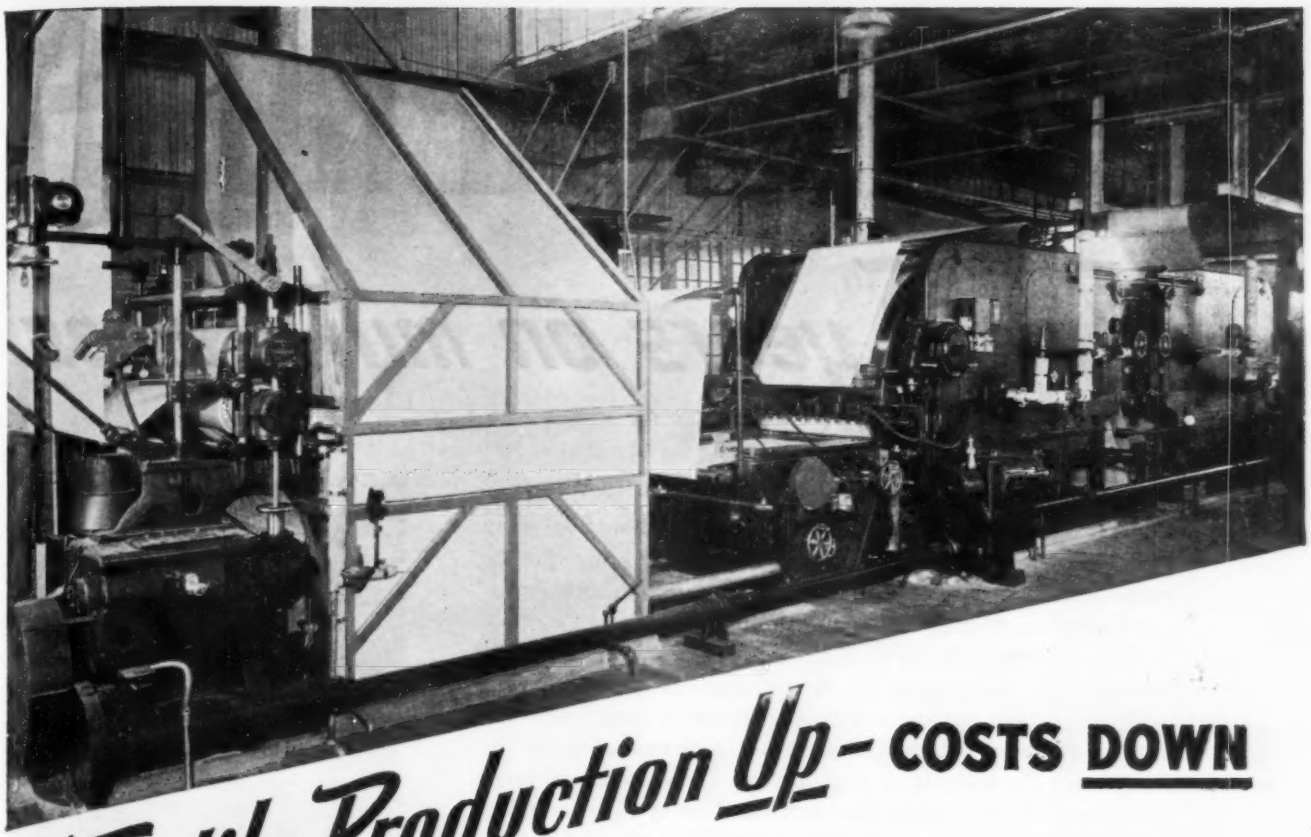
MERCERIZING PENETRANTS

Send for free booklet, "Mercerizing and ALKAMERCE – The Ideal Dry Mercerizing Penetrant"

Hart Products

based on research



Textile Production Up – COSTS DOWN

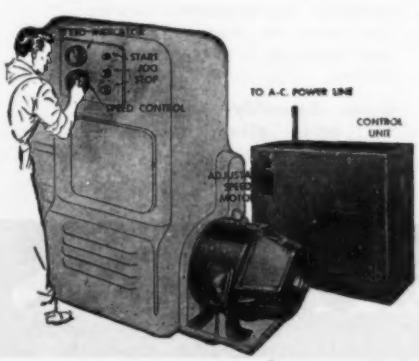
with Reliance V★S Drive

Wherever Reliance V★S Drive is introduced in a textile mill, quantity and quality of production increase while costs decrease. V★S, the *All-electric, Adjustable-speed Drive operating from A-c. Circuits,* makes any machine far more efficient.

V★S offers an infinite range of stepless speed changes—smooth starts and stops—maintenance of proper tension. Its all-electric control may be automatic or manual, either at the machine or from remote stations. Conveniently-packaged, space-saving V★S units have proved their value in many types of textile mill equipment—cloth printing machines, continuous bleaching ranges, beamers, slashers and others. Write today for Bulletin 311, which gives you more of the money-saving facts about V★S Drive.

RELIANCE V★S DRIVE

THE ALL-ELECTRIC ADJUSTABLE-SPEED DRIVE for A-c. Circuits



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RELIANCE A-C D-C MOTORS

"Motor-Drive is More Than Power"

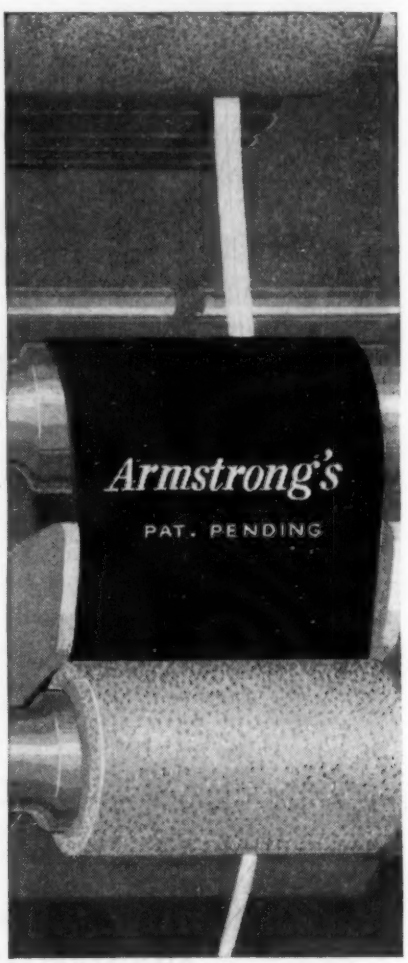
ACCOTEX APRONS

...after 5 years on mill frames

Many of Armstrong's Long Draft Aprons have been in continuous operation in leading mills for more than five years yet show little sign of wear, still keep producing top quality yarn. Thus you reduce apron costs when you install Accotex Aprons on your spinning and roving frames.

The extra-long life of Accotex Aprons is due to a special construction developed by Armstrong. Heavy layers of synthetic rubber enclose a sturdy, nonstretch cord interliner. This provides a substantial wearing thickness on *both* the inside and the outside of the aprons. These tough surfaces give years of uniformly fine service. The synthetic rubber used is nonoxidizing and not affected by oil. And since Accotex Aprons are seamless, they won't tear or break open during operation.

Prove the durability and economy of Armstrong's Accotex Aprons on your own frames. Your Armstrong representative will gladly help you arrange a test installation. Ask him for samples, prices, and complete information. Or write today to Armstrong Cork Co., Textile Products Department, 3605 Arch St., Lancaster, Pa.



Also by the makers of Accotex Aprons . . . the Accotex Cot

The most widely used textile roll coverings, Accotex Cots are the result of the same specialized research and technical skill that produced the Accotex Apron. Here are eight reasons why Accotex Cots spin higher quality yarn and increase poundage.

1. **Long Service**—Accotex Cots are tough. And they can be rebuffed 5 or 6 times.
2. **Good Drafting**—Accotex Cots retain their excellent grip, because their cork-and-synthetic compositions resist slicking.
3. **Reduced Eyebrowing**—The resistance of cork-and-rubber to slicking minimizes eyebrowing.
4. **Reduced Lapping**—Accotex Cots have no affinity for textile fibers and are not affected by temperature or humidity.
5. **Good Start-Up**—Accotex Cots are non-thermoplastic, resist flattening.
6. **Solvent Resistance**—Accotex Cots are not affected by oil, water, dyes, or any of the commonly used textile solvents
7. **Seamless Construction**—Accotex Cots have no seams—no structural weakness to cause premature failure.
8. **Quick Assembly**—Accotex Cots are ready glued for easier, quicker assembly.

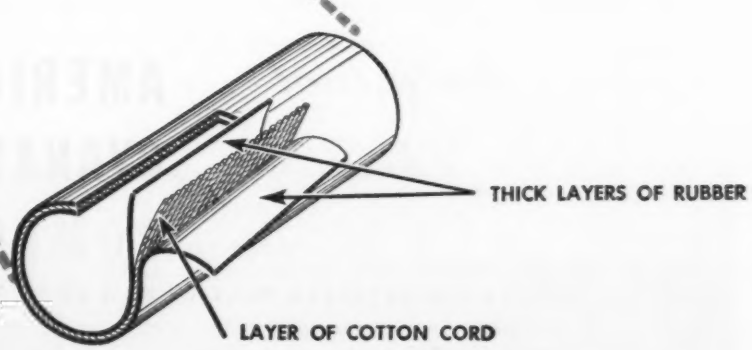
ARMSTRONG'S ACCOTEX APRONS

still produce quality yarn

4 More Reasons Why It Pays to Install Accotex Aprons

The Armstrong construction shown below not only makes Accotex Aprons more durable but also provides four additional operating advantages.

- **UNIFORMITY:** All Accotex Aprons have the same composition throughout, and dimensions of every size are accurate.
- **CLEAN RUNNING:** Accotex Aprons do not crack or scuff. Thus they assure cleaner running work and less waste.
- **REDUCED LAPPING:** Accotex Aprons are not affected by temperature or humidity. They perform with a minimum of lapping.
- **GOOD FRICTION:** The efficient "grip" of Accotex Aprons reduces slippage.



ACCOTEX COTS
CORK COTS

YES!
YOU CAN MEET
THE DEMAND FOR

IMPROVED

STAIN RESISTANCE

WATER REPELLENCE

WITH

PARAMUL 115

A Cyanamid Textile Finish for

COTTON

RAYON

LINEN

WOOLENS

PARAMUL** 115 Water Repellent is an aqueous solution of wax and aluminum salts that imparts superior water repellency and stain resistance to a wide variety of fabrics—cotton, rayon, linen and wool. It is equally suitable for treating such fabrics for outerwear or equipment purposes. Easy and economical to use. Odorless and harmless to skin or fabric. Stable over a wide range of temperatures, it can be stored safely for long periods of time. In its ability to meet a specific need precisely, PARAMUL 115 is typical of the many Cyanamid products developed for use in the textile industry.

CALL CYANAMID! The services of Cyanamid's technical service staff backed by our extensive textile research facilities are ready to assist you to achieve superior results . . . *economically* . . . in water repellence and stain resistance for your fabrics.

Industrial Chemicals Division

AMERICAN CYANAMID COMPANY

AMERICAN CYANAMID COMPANY PRODUCTS

30 ROCKEFELLER PLAZA • NEW YORK 20, N. Y.

AMONG CYANAMID PRODUCTS FOR THE TEXTILE INDUSTRY ARE... Penetrants, Softeners, Finishes, Sizing Compounds, DECERESOL* Wetting Agents, PARAMUL**115 Water Repellent, and other Specialties and Heavy Chemicals. For low-cost chemical equivalent of distilled H_2O... FILT-R-STIL* Demineralizing Units.

*Reg. U. S. Pat. Off. **Trade-mark

It's So Quiet . . .

YOU CAN HEAR A COST DROP!

YES, that sound you hear is the dropping of Comb Box costs! Your ear will tell you that replacement costs due to friction are out with the new . . .

Southern States SS Equipment Corp.

TYPE C

BALL BEARING COMB BOX

NO FRICTION . . . because there are NO SLAPPING PARTS. Double row, heavy duty ball bearing construction throughout. There are NO WEARING PARTS.

NO OIL LEAKAGE . . . because this Southern States Comb Box is factory lubricated and sealed. No possibility of oil damage to the doffer clothing.

NO OTHER BOX NEEDED . . . because, with adapter base, this revolutionary design fits, either RIGHT or LEFT-HAND, ANY current make of card.

For lower costs and improved operating efficiency in your Card Room, investigate the Southern States Comb Box TODAY! Write for Bulletin TI—100

HENDERSON FOUNDRY & MACHINE CO.

(A Division of Southern States Equipment Corporation)

HAMPTON, GEORGIA

Largest Manufacturer of Cast-Tooth and Cut-Tooth Gears in the South

NEW DAYCO SLASHER ROLL!

. . . will pay for itself
in six months
ADDITIONAL ADVANTAGES
1. 15 to 30 minutes saved each time of starting—no soaking—no warming up
2. Size uniformity increased tremendously
3. Elimination of lap streaks
4. Time savings of approximately one hour —for each "change-over"
5. Minimizes yarn flattening

Efficiency of the New *Mill Proved* Dayco Slasher Roll is so great, it is estimated, the savings resulting from installation will pay for it within a period of approximately six months. The New Dayco Slasher Roll has been perfected to slash any type yarn, and it is not affected by oils or chemicals. Size materials that harden do not affect Daycos and 15 to 30 minutes are saved when starting up. Uniformity of the size is increased tremendously . . . lap streaks and yarn flattening are minimized.

It is estimated a New Dayco Slasher Roll will give satisfactory service for at least two years. In this period it will save many, many hours of blanket changes and installation time. It will pay you to get full information. Write to Dayton Rubber, Dayton, Ohio, or

TEXTILE PRODUCTS DIVISION, DAYTON RUBBER
Main Sales Office: Woodside Bldg., Greenville, S. C.
Factory: Waynesville, N. C.

THESE *Mill Proved* PRODUCTS WILL SAVE YOU TIME, MONEY AND MATERIALS

BOX LOOM PICKERS • BOX LOOM PICKER BUMPERS • CONE BASE PADS • FROG AND LOOM BUMPERS • HOLD-UP STRAPS • LONG DRAFT APRONS • LOOP PICKERS • LUG STRAPS • ROLL COVERINGS • RUB APRONS • SLASHER ROLLS • TAKE-UP ROLL COVERING • TEMPLE ROLL TUBING • VIBRATION DAMPENERS • WOOLEN AND WORSTED COTS

Dayton Rubber

THE MARK OF TECHNICAL EXCELLENCE IN NATURAL AND SYNTHETIC RUBBER

Waynesville, N. C. plant, devoted exclusively to manufacturing textile products designed to help you produce finer textiles more economically.

Convention Season

Your "Shorts and Remnants" is getting to you right in the middle of the convention season. It's pretty rough on some of the fellows that go to them all. Biloxi—Atlantic City—Augusta—Pinehurst—Daytona—Shawnee-on-the-Delaware; all coming right together, but then you can see that prospect when he's not behind that desk.

Convention Talk: A lot of people that are not running a business are talking about business' reducing prices. Those same folks made sure they ran wages up for the unions before they talked about cutting prices. It's always been strange to us that people who never had to run a business can always make such helpful suggestions to those that run them. But then, it always does take an old maid or a bachelor to tell you how to raise children.

But a lot of talk and publicity about raising wages and at the same time cutting prices can help others to plan for the future. Materials handling suppliers know that such conversation gets the buyers on their toes, and they look around for ways to save a dime. The suppliers with equipment for saving in labor are making a bid for the textile business.

Higher wages and lower prices remind us of the motorcycle rider who had turned his coat around, buttoning it in the back, to keep out the wind. He had a wreck, was knocked out but not seriously hurt; however by the time bystanders had twisted his neck to what they thought was the front of his coat, the man died.

◆

Oils, Fats, and Waxes

"I should like to secure a reprint of the article 'Oils, Fats, Waxes'—Russell Gill in Cotton, Vol. 110 No. 11 p. 43-6, 55 (1946)."

ARTHUR SHAPIRO

Philadelphia 39, Pa.

◆

Reprint Information Sought

"I would appreciate any information you could give me as to the availability of a reprint of the article: 'Countng Neps in Cotton' by Horace L. Pratt, March, 1946. . . . "

LEONARD K. BERKOWITZ
Anchor Rome Mills, Inc.
Rome, Ga.

(This was really popular. No reprints now available.)

◆

An Old Magazine Saver

"The enclosed letter will explain itself . . . As an old magazine saver I can sympathize with the guy. Evidently 'Shorts & Remnants' gets around.".

ROBERT McCRANEY.
Morgan Cotton Mills,
Quitman, Ga.

(The letter sent on by Mr. McCraney was from Chas. Lutz, 7182 Andrews Ave., West Oak Lane, Phila., Pa., who sent on an Old-Timer article from Sept. 1940 issue which Mr. McCraney requested in S & R, Feb. issue. Mr. Lutz says that he has saved all issues since 1930 and that he has made mailings to our subscribers as far west as St. Louis. He has "just books and more books, cartons full of periodicals of various kinds on most any angle of textile work . . . One drawer stuffed full of COTTON." He says "Talking frankly, my wife doesn't take anybody in this room of mine and she says she gets a headache when she sees all there is in there to wipe off" (You know, Mr. Lutz, the weaker sex just can't appreciate our hobbies.)

SHORTS and REMNANTS

Maintenance at Dan River

"A series of articles appeared recently on the maintenance program of Riverside & Dan River Mills. If you could send to me copies of the articles it would be very much appreciated."

W. R. MacINTYRE
V-P, Joseph Bancroft & Sons Co.,
Wilmington 99, Del.

(We have a few reprints. Dan River maintains machinery in a big way.)

◆

Everglaze

"We are anxious to get 50 to 100 copies of your article on 'Everglaze' Fabrics which appeared on page 57 of your March issue for our client. . . . "

JOHN GILBERT CRAIG
John Gilbert Craig Advertising
Wilmington 99, Del.

◆

More Reprints

"As subscriber since many years, we would appreciate if you could send us the following reprints: Warp Sizing, by Paul Seydel, How loom fixers are trained at the Bibb Plant in Columbus, by E. C. Dorn. . . . "

OSCAR ADOT ANDIA
Gerente General
Buenos Aires, Argentina.

(Present series on "Cotton Warp Sizing" will be in book form. Eighth article is in this issue. About five more to go.)

◆

It Pays to Advertise

"I subscribed to your paper when my residence was Tel-a-Viv, Palestine, and I think you published in 1944/5 a series of advertisements of an American chemical company with very wonderful coloured illustrations showing the history of hand weaving through the ages. I kept these illustrations and framed same as I liked them very much indeed.

Unfortunately I have lost the whole collection, and I would therefore be extremely grateful, if you could supply me with a new copy of one of each of these pictures. . . ."

ALEXANDER FRIGYES
London, S. W. 3, England.

(We don't blame you for wanting these. A. E. Staley Mfg. Co. (Starch) put them out. Some of our toughest superintendents have them framed, too.)

◆

Effect of Sunlight on Fabrics

"We have unsuccessfully gone back through our copies of your magazine for the past 12 months without finding an article which we believe you published on a test made by the Quartermaster Corps (we think) on the effects of sunlight on fabrics made of cotton and various synthetic fibers. . . "

W. K. SHAW, JR.
E. A. Shaw Co., Inc.
Boston, Mass.

Roll Pickers

"In your issue, December, 1946, in the article 'Automatic Roll Pickers' you give the experience from 19 mills. I would appreciate your giving me informaton where to buy these pickers.

GUNNAR KOCH
Skene, Sweden

(Maybe M.-B. Products should have had a full page to catch Mr. Koch, but even their ¼ page got attention in Utica, N. Y.)

"Our spinning foreman noted in a recent issue the article on mechanical roll pickers. We noted the pneumatic one made by the M-B Products Co., 130 E. Larned St., Detroit, Michigan. Do they make an electrical driven style?"

H. P. BARNARD
Purchasing Agent
Dunlop Tire & Rubber Corp.
Utica, N. Y.

"Your article on automatic roll pickers was read with interest. We have in operation a few of the pneumatic type."

G. P. WATSON
Kendall Mills
Paw Creek, N. C.

◆

Change in Name

"I congratulate you on your new name. For some time, the contents of your interesting and informative magazine have indicated the change in name which you have now made."

J. CRAIG SMITH
Executive Vice Pres.
Avondale Mills,
Sylacauga, Ala.

"Your reasons for changing the name of the magazine are convincing. Please permit me to say I think you have made a wise choice in making the change. The former title was not comprehensive enough to cover the activities which your publication has embraced."

W. G. SIRRINE
Pres., Textile Hall Corp.
Greenville, S. C.

How To Be a Golf Champ

It must be a matter of keeping in condition as shown by the early morning picture of B. W. Whorton, Supt., Dixie Cotton Mills, LaGrange, Ga., practicing at sunrise. Mr. Whorton won a last year's championship at the Ga. Cotton Mfgrs. Assn. meeting.

OUT OF THE FRYING PAN...

into high-grade soap!

LOW-GRADE KITCHEN FATS are now being used to make high-grade soaps! It's another interesting application of the powerful oxidizing action of chlorine dioxide.

The key to the commercial usage of chlorine dioxide is Mathieson's sodium chlorite ($NaClO_2$). This stable chemical permits *controlled* production of chlorine dioxide by industry . . . by the soap industry for the upgrading of inferior fats and oils . . . by the paper industry for the bleaching of kraft, sulfite, soda, rag and flax pulp to high brightness with minimum loss of fiber strength . . . by the water works field for the removal of unpleasant tastes and odors. In the textile industry, sodium chlorite itself provides the safe bleaching of cottons and rayons to *extra* whiteness.

It will pay you to investigate the many industrial applications of this unique oxidizing agent. Write to The Mathieson Alkali Works (Inc.), 60 East 42nd Street, New York 17, N. Y.

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CHEMICALS
CAUSTIC SODA . . . SODA ASH . . . BICARBONATE OF SODA . . . LIQUID CHLORINE . . . CHLORINE DIOXIDE . . . AMMONIA, ANHYDROUS & AQUA . . . HTH PRODUCTS . . . FUSED ALKALI PRODUCTS . . . DRY ICE . . . CARBONIC GAS . . . SODIUM CHLORITE PRODUCTS . . . SODIUM METHYLATE

Textile Industries

MAY
1947

The Spiral Staircase of Inflation

IT BEGINS to look very much as if we will soon have another round of big strikes followed by price increases. About 350,000 telephone workers are now out on strike to enforce demands which the telephone companies contend would increase the cost to each telephone user about $3.00 a month. The telephone workers are asking a basic wage increase of $12.00 a week and also have a great number of other demands, nearly all of which would mean increased costs to the telephone company.

According to Government statistics, these telephone workers have been earning $43.19 a week, which seems to be about in line with the earnings of people with similar talents and qualifications. If the telephone workers win their dispute and get substantial increases, there will have to be corresponding raises in telephone rates, which will hit practically everybody and perhaps result in a good many telephones being taken out by those who can not afford the higher rates, so that there will be fewer jobs in the telephone industry.

The big headline in the morning paper as this is written reads, "Delaying Pay Hikes for Labor Laws Threatens Big Tieups, Murray Says." It is evident from this that Mr. Murray feels that all of his CIO people should have a wage increase, and while he optimistically indicates that these increases can be paid out of the profits of industry, it is quite certain that they will be passed on to the consumer. While labor leaders all over the country have been crying that industry is making exorbitant profits and can well afford wage increases, they never point out that the profits of industry are quoted in inflated dollars and are not so exorbitant as the labor leaders contend. The net income of incorporated business for the year 1941 was $8,519,000,000.

The raising of wages without a corresponding increase in production is economic insanity.

It is estimated that in 1946 corporations had a net income of about 12 billion dollars. According to Government statistics, the cost of living has advanced about 52 per cent since 1941, and a 12 billion dollar income for industry in 1946 represents an actual *decrease* in profits as compared with 1941.

Furthermore, since 1941, according to Government figures, the average wages in manufacturing industries went up more than 70 per cent, and the average weekly earnings of employees rose more than 75 per cent. If, therefore, these Government figures are correct, the members of Mr. Murray's CIO are about 20 per cent better off than they were in 1941 and their employers are a few per cent worse off.

Current statistics indicate that during the first quarter of 1947 corporate earnings advanced sharply and are now running at the rate of about 15 billion dollars a year. Our labor leaders argue that if the earnings of industry are now at a rate of three billions a year more than last year, wage increases to the tune of three billion dollars can be granted without hurting anyone. This is a very specious argument, because the same forces which have increased profits during the past few months would make it possible to raise prices on the basis of any wage increases.

If the country's labor leaders have any reasonable amount of common sense and hold the interests of their members truly at heart, they would be bringing pressure to bear to cut prices rather than raise wages. As we have repeatedly pointed out, the raising of wages without a corresponding increase in production is simply economic insanity. There is no way under the sun to really increase wages without increasing the production for which the wages are paid. Unless there is an increase in production, any increase in wages is transitory and illusive and must be almost immediately reflected by a corresponding increase in prices.

If the labor leaders of the United States can devise any plans for getting prices down, they will have accomplished an immense service to the country as well as to their own followers. Unhappily,

Pumps with a DIFFERENCE *that means savings for* YOU

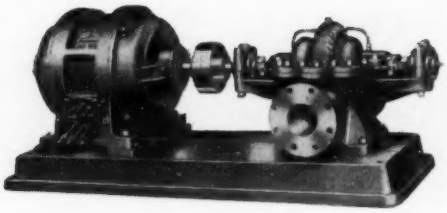
It's no trick to design a centrifugal pump that will give *passable* service. But to give such pumps the extra measure of efficiency that saves you the most money requires skilled engineering—rigidly controlled foundry practices—plus long experience. Gardner-Denver centrifugals do a better job because they are hydraulically and mechanically *right*—because their water passages are properly proportioned—because castings are absolutely smooth. For complete information about any of the pumps shown on this page, write Gardner-Denver Company, Quincy, Illinois.

GARDNER-DENVER

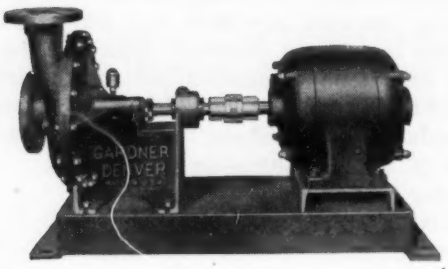
SINCE 1859

ENGINEERING QUALITY ... SINCE 1859

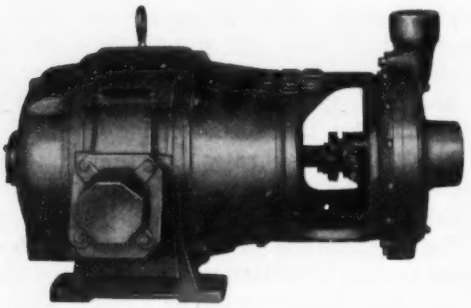
Atlanta, Ga.; Birmingham, Ala.; Boston, Mass.; Hazleton, Pa.; Knoxville, Tenn.; Washington, D. C.; New York, N. Y.; Philadelphia, Pa.; Pittsburgh, Pa.



Easy accessibility *is a feature of Gardner-Denver Double-Suction, Single-Stage Centrifugal Pumps. Available in sizes to cover all heads up to 300 feet. In the first year of operation, these pumps often save enough in power costs to pay for themselves and their motors.*



Low in first cost—*easy to install; Gardner-Denver Side-Suction Pumps are ideal for replacement of outmoded units in general service. Capacities up to 2.3 million gallons per day or 1600 gallons per minute can be handled at heads up to 100 feet.*



Upside down—*or right side up—these Gardner-Denver Close-Coupled Centrifugals operate efficiently—take little space—because pump and motor are combined. Gardner-Denver Close-Coupled Centrifugals are designed for capacities up to 250 gallons per minute and heads up to 250 feet.*

"Pueblo" by Edward Chavez

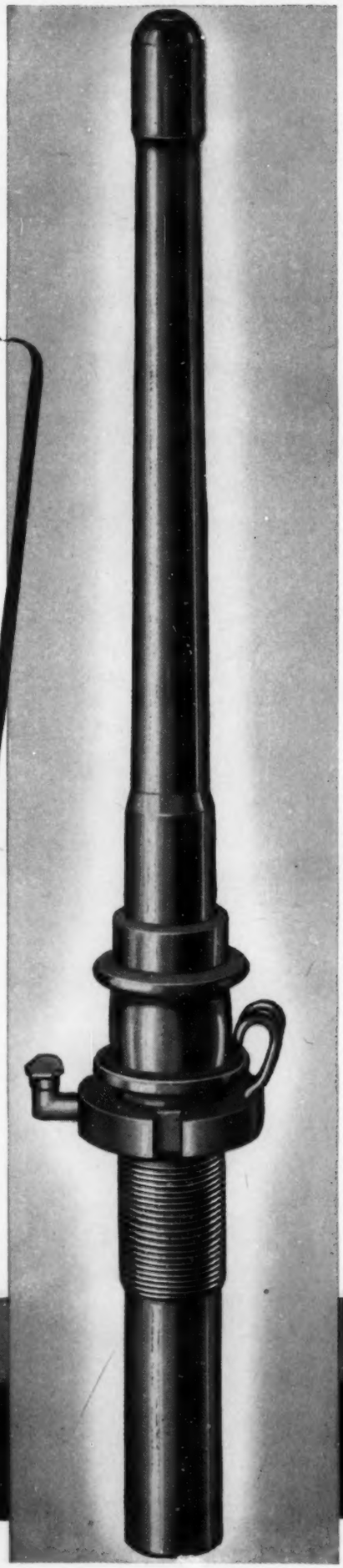
CONTAINER CORPORATION OF AMERICA

MODERN TEXTILE PACKAGING

Save Waste Paper

Marquette
ROLLER BEARING SPINDLES
with FULL-FLOATING FOOTSTEP BEARING

. . . insure continuous operation and reduce your costs. The standard Marquette cotton spindle, equipped with aluminum adapter (as illustrated) for use with paper tubes, has been giving satisfactory service for seven years.



Write for illustrated catalog

The Marquette METAL PRODUCTS CO.
CLEVELAND 10, OHIO

SUBSIDIARY OF CURTISS-WRIGHT CORPORATION

Manufacturers of: HYDRAULIC AND ELECTRIC WINDSHIELD WIPERS • FUEL OIL PUMPS
HYDRAULIC GOVERNORS FOR DIESEL ENGINES • ROLLER BEARING TEXTILE SPINDLES
AIR COMPRESSORS • PRECISION PARTS AND ASSEMBLIES

Southern Representative Byrd Miller, Woodside Bldg., Greenville, S. C.

however, the only terms in which a labor leader seems to be able to think are those of higher wages, and higher and ever higher wages. The effects of such thinking are now becoming only too unpleasantly apparent in the textile industry. Woolen mills all over the country are closing down for lack of business, and mills spinning coarse cotton yarns are also closing. These closures are but the forerunners of others as high-priced goods fail to tempt buyers.

The labor union economists now loudly cry that what we need is "increased purchasing power," and therefore the people who make these things that are already selling for too much should be paid more for making them so that their "purchasing power" will be increased, even if the prices of the things they make have to be raised again and become completely unattractive to buyers.

Now that the automobile companies have managed to get their plants in full operation, after endless numbers of crippling strikes held them back last year, some of them have announced reductions in the prices of their cars; yet the United Auto Workers are asking for 23½ cents an hour wage increases to push the prices of cars up again. Practically the whole automobile industry is seriously worried over the possibility of automobiles being priced out of the reach of millions of persons who want them.

While the automobile is casually regarded by most Americans as a necessity, it isn't. About 75 per cent of the people who own automobiles could get along very well without them if they had to. The automobile for most persons is a great convenience and an enjoyable luxury, but by no means a necessity. Too-high prices for automobiles will greatly curtail their distribution and result in restricted employment.

Those economists and business men who momentarily forget that we are not now living in a natural economy, but one which is operating under forced draft as a result of wartime shortages and inflated incomes, can easily be deluded into thinking that our present happy-go-lucky business methods can continue forever.

We have approached a point where the frantic demand for goods is subsiding. A very large portion of the free and easy money handed out by the Government, hot off the printing presses, has been spent, and unless the Government is prepared for another orgy of printing press inflation, there will be a continually slackening demand for goods at high prices.

According to Government statistics, industrial labor is about 20 per cent better off than it was in 1941. For many years labor's status has been improved at the rate of about four or five per cent a year as technical advances were made in manufacturing and distribution. It would seem therefore that labor leaders would be smart enough to bend all of their energies to increasing the efficiency of their workers to get prices down rather than trying to jack wages up. It is, however, an unhappy fact that labor union thinking is in exactly the opposite direction and that labor leaders with few exceptions, enthusiastically try to *reduce* efficiency under the delusion that this provides more jobs and produces greater prosperity.

Good wages cannot be paid for running worn out, broken down equipment.

Only the other day a salesman for a machine tool manufacturer was telling about a factory which had grouped a large number of machine tools in circles so that five of these machines were in a ring where the attendant merely moved in a circle with the fewest possible steps to tend his machines. The plant became unionized, and the union immediately demanded that there be an attendant for *each* machine instead of one man to handle five. The result of this demand was that the company replaced these semi-automatic machines with some that were completely automatic, and therefore all of the machine tenders were out of a job. It is rather difficult for an employer to absorb a five-fold labor cost increase.

In the textile industry, it has been the experience of employers that labor unions are constantly nibbling away at efficiency and trying to find arguments for hiring two or three or four persons to do one person's work. This may increase the number of dues payers for the union, but it will never increase the prosperity of the workers, since any prosperity they enjoy is necessarily based on efficient production.

This summer is likely to be a very critical time for American industry, and if the labor leaders can be persuaded to use a little good sense and keep their people busy at work, producing and distributing first-class goods at constantly reduced prices, we can enjoy a longer period of prosperity before the next depression than if the depression is immediately precipitated by imprudent demands for inflating wages.

Our labor leaders are very shortsighted in making such vigorous complaints about large earnings for industry, because labor is going to get all of these earnings in the long run anyhow, and unless industry is permitted to keep a fair proportion of the national income, the United States industrial plant can not be kept in first-class condition. Most manufacturing plants took a beating during the war, and an incredible amount of new machinery is needed to put these plants in good physical condition for meeting hard competitive conditions in the postwar era. New machinery has to be bought out of capital assets, and if corporations are not permitted to keep enough money to buy new plant equipment, they are going to have to pay wages based on the production of obsolete machinery.

It seems to be the general idea among the labor union folks that the earnings of industry mostly go to buy yachts, jewelry and lavish entertainment for the idle rich who are supposed to own all the corporations. There is, of course, a trifling amount of corporation income thrown away on foolishness, but it is only trifling compared with the tremendous investments plowed back into in-

(*Continued on page* 147)

Labor and Management Benefit by

THE ECONOMIC well being of labor and employers can only be preserved through a high productivity of labor and a good utilization of plant facilities.

In the textile industry, the utilization and proper compensation of labor are rapidly becoming increasingly important elements. The days are numbered when a mill can be operated competitively by outmoded rule of thumb methods.

The increase in the wage level in the cotton textile industry in the past few years has been greater than in any other industry; in fact, it has been revolutionary. In the trying years ahead of us only the more efficient and economical plants will be profitable, and at the same time afford continuous employment and security to labor.

To have a favorable competitive position, management must have control of its operations. Control can only be obtained through measurement of and application of accurate standards to all plant activities. Establishment of correct manufacturing methods, proper machine utilization, effective use of labor, control of quality, and material utilization are essential.

Note: **This article on industrial engineering principles as applied to textiles is presented to our readers in answer to popular demand for such information. It should be remembered that work of this type can have a profound effect on the operation of the plant and on the employees involved. No effort should be made by inexperienced mill personnel to apply the principles described.**

In this article we shall attempt to cover in detail the setting up of proper operating standards and the measure, control, and compensation of labor.

Job Evaluation

Wage incentives have been used in textile mills for many years, usually in the form of piece-rates applied to a few major operations. The plan described herein involves the use of a common unit of measure or a yard-stick which determines the relative performance of all labor activities in the plant.

The first step in the complete application of proper incentives is a Job Analysis and Evaluation of rates of pay for all occupations. We find that most plants that have had no job evaluation will have numerous individual jobs considerably out of line with the general wage structure. These inequalities should be corrected before applying incentives.

Industrial labor is subject to division into classes according to the relative amount of experience, skill, responsibility, working conditions, and other qualifications required for proper performance of the job under consideration. These classes are set up in steps above a base of unskilled labor.

Identical work should always be in the same class irrespective of geographical location or general wage levels. The scale of rates varies with locality, cost of living, etc., but the classification remains unchanged. Job evaluation deals with the jobs—not with the individual worker.

Motion pictures are used in a study of each job analyzed.

Compiling Factual Data

The job evaluation first requires the compiling of the necessary factual data on all jobs. These descriptions list in sequence the duties, responsibilities, and other requirements, and record the machines, tools and equipment necessary for the proper operation of the job; also listed are the value of equipment and value of the product for which the operator is held responsible. This information constitutes the job analysis and is the basis for the point evaluation of the job in question.

In this analysis the following

Industrial Engineering Principles

By **H. B. CRAFT** and **C. J. SCHWEM**
Vice-President Engineer
American Associated Consultants, Inc.

Below: Typical job specification report which gives permanent record of the details of an operation at the time of measurement.

BLANK MILL, INC.

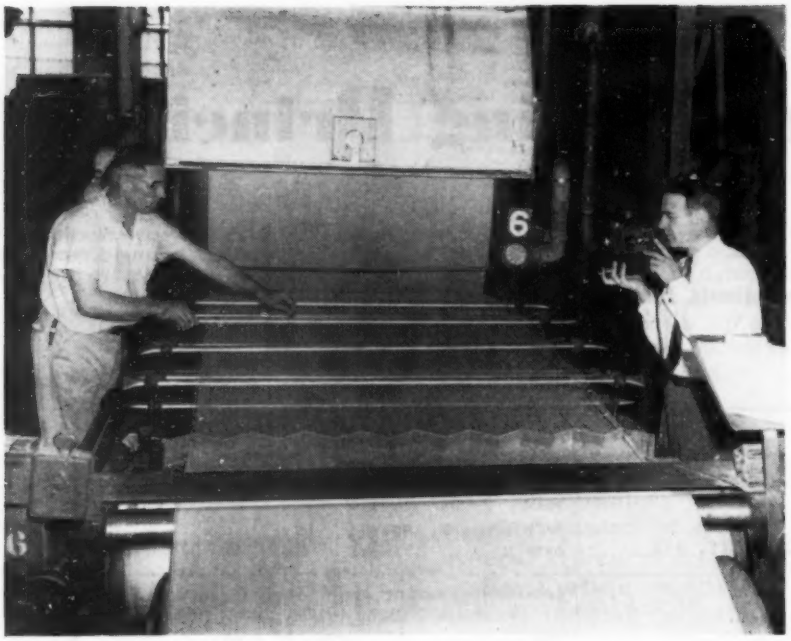
OPERATION NO.

Job Specifications

EQUIPMENT 40" Draper Loom Model E 1.02 End Stops/Loom Hr. @ Std. Eff. 85%	PLANT DEPT. Weave DATE
OPERATION DATA— 172 P.P.M. 10.32 M Picks per Hr. - 100% 8.77 M Picks per Hr. - @ 85% Std. Eff. 4 Bank Type Drop Wires 3 Harness 22 Reed 3 Ends/Dent 42.45 Width in Reed 1.28 Units/Loom Hr. .96 Allowed Minutes/Loom Hr. 60 Looms - 76.8 Unit Hour Possibility	OPERATION Weaving Army Herringbone Twill SIZE SPEC. 69 x 48 STOCK RECEIVED Warp 10s Filling 10 1/2s Total Ends 2812 STOCK DELIVERED Unit Value .146 PER M Picks OPERATION BASE RATE C. PER HOUR STANDARD COST PER

ELEMENT		NORMAL MINUTES PER M Picks
1. Warp stops back of drop wires	.95 N.M. x .013 Occ./M Picks	.01235
2. Warp stops front of drop wires	.66 N.M. x .045 "	.02970
3. Filling stops	.27 N.M. x .032 "	.00864
4. Mechanical stops	.30 N.M. x .016 "	.00480
5. Pick outs	1.60 N.M. x .002 "	.00320
6. Mat up	1.95 N.M. x .007 "	.01365
7. Mark up, pick out, smash, warp out, warp bobbins	1.33 N.M. x .001 "	.00133
8. Walk to stopped loom	.155 N.M. x .116 " x 50%	.00899
9. Flag loom, mechanical & pick out	.24 N.M. x .006 "	.00144
10. Patrol backs & clean warps (Once per 30 minutes)	.110 N.M. ÷ 4.385 M Picks	.02508
11. Patrol fronts (Once per 60 minutes)	.060 N.M. ÷ 8.77 "	.00684
12. Inspect & correct defects — (Inspectors)	.24 N.M. ÷ 70.16 "	.00342
13. Start or stop loom - 1 per 8 hrs.	.045 N.M. ÷ 70.16 "	.00064
14. Look at seconds 1 per 8 hrs.	.92 N.M. ÷ 3950 "	.00023
15. Turn pick clock 1 per 8 hrs.	.040 N.M. ÷ 70.16 "	.00057
16. Clean filling fork & grate 1/8 hrs.	.21 N.M. ÷ 70.16 "	.00299
17. Loose extra or ends out	2.00 N.M. x .0024 Occ./M Picks	.00480
18. Miscellaneous	.004 N.M. per M Picks	.00400
	Total Normal Minutes	.13267
	10% Fatigue	.01327
	Total Units	.14594

SUPERSEDING JOB SPEC. NO. REASON FOR CHANGE	JOB SPEC. NO. SHEET OF



Camera used in job analysis at the slasher. Motion pictures afford record of subsequent changes in methods of operating conditions.

factors are considered and weighed:

1. **Skill, training, and experience required**
   - a. Previous experience
   - b. Learning period
   - c. Mechanical ability required
   - d. Complexity of process
   - e. Dexterity requirements
2. **Responsibility**
   - a. Material
   - b. Equipment
   - c. Effect on subsequent operation
   - d. Team work
   - e. Alertness
   - f. Attention to orders
3. **Physical Requirements**
   - a. Monotony
   - b. Abnormal positions
   - c. Abnormal strain
   - d. Disagreeableness
4. **Hazards**
   - a. Disease
   - b. Accidents
   - c. Internal injury

After all jobs have been analyzed and described it is necessary to select the particular jobs in the mill that will receive the maximum points for each factor in the foregoing evaluation. These maximum points will serve as a basis of comparison for the assignment of points to each factor in each job.

A summary of total points for each job will give the relative positions in the rate structure, such as 40 points for weaving, 26 points for spinning, and 33 points for doffing. The final objective is to determine in cents per hour the pay for each job depending on the classification.

Job analyses and base rate evaluations are made by a group of individuals formed into a committee or by a group of committees. Preferably, a permanent committee should be composed of such men as the personnel manager, plant superintendent, standards manager, industrial engineer, and other mill men familiar with mill operations, plus a committee from each of the particular departments being analyzed.

Operating Standards

Operating standards are established by making a study of methods and equipment to determine and standardize on correct processes, speeds, twists, package weights, bobbin weights, methods, cleaning, and patrolling schedules, etc. From our experience we know that this phase of management is neglected in many mills.

The application and maintenance of successful and equitable incentives necessitates that standard speeds, package weights, and breaks, etc., be maintained in order to make the particular rate applicable. Variations from the standards for which the rate was set lead to either loose or tight rates. Also, by standardization the maximum package weights, maximum speeds, and minimum cleaning can and will be obtained. Sufficient running studies must be made of loom stops, and breaks, etc., to determine standard running conditions. Abnormal conditions if found must be corrected before establishing rates.

Motion Picture Camera

A permanent record of the exact method used in a particular operation can be made with a motion picture camera. This standard method can then be used to train new operators by showing the moving picture at slow speed, normal speed, etc. This motion picture record is extremely valuable in affording irrefutable evidence of subsequent changes in methods or operating conditions which might justify a revision of work standards.

In this connection, we might state that in order to have a fair, equitable wage incentive plan which is acceptable to labor, thus securing maximum labor production, work standards now established must be guaranteed against any reduction as long as operating conditions and methods remain unchanged.

"Work Measurement"

Work measurement is obtained by the actual time studies from which standards are set and applied to the various jobs. Work falls naturally into two classifications, Direct and Indirect. Direct work can be generally described as work which changes the form, structure, or appearance of the raw material, or adds to the value of the product. Indirect work is all other necessary work done in processing the product, such as supervision, handling, inspecting, machinery fixing, cleaning, etc. All of these labor activities can be measured by the same unit.

Standards should be established from time studies and frequency checks actually made on all jobs in each mill. This procedure is necessary inasmuch as there are legitimate differences in the same operation from mill to mill, and,

in fact, from department to department in the same mill.

Studies should not be made on selected operators because they are the best or fastest in the group. Any qualified operator may be studied. The actual time an operator requires on each element must be adjusted for the effectiveness of his performance in determining the normal time to be allowed. This is where the trained engineer's experience comes into play.

Each job must be broken down into elements or small segments of the total job. This elemental breakdown is necessary in order to insure proper comparisons of numerous time studies on different operators and by different time study men.

Judging Performance

The knowledge and ability to judge this performance comes only through training and experience. For example, one operator actually takes one minute to do an element of a job but is working 20 per cent above normal. Then 1.00 minute plus 20%, or 1.20 normal minutes would be allowed to perform this element.

Another operator studied on this same job is working 20% below normal and actually takes 1.50 minutes to do this element, so 1.50 minutes less 20% equals 1.20 normal minutes.

Thus, through the application of the proper effectiveness rating the same time allowance has been arrived at despite the fact that one operator is working at a pace 50% faster than that of the other. To the previously described "normal minutes" a percentage is added to take care of fatigue and personal allowances. This percentage will vary widely depending on the nature and requirements of the particular job.

The normal minutes allowed plus the fatigue allowance are called a Unit Value. A Unit may be defined as the amount of work a normal operator will do in one minute when working at a normal rate of speed and taking full advantage of the proper fatigue allowance. A good time study engineer must know how to rate an operator's performance and know that the job is being done according to prescribed method.

Basis for Standards

Standards for direct operations in textile plants are set to allow a specified number of Units per hank, units per pound, per thousand picks, or per frame doffed, or some other checking unit that is easily ascertained. The operator's daily performance is determined from his production, times the Unit Value per unit of production, plus allowed minutes for lost time for which the operator is not responsible, plus unmeasured minutes of work, plus indirect minutes of work that may have been performed by him. This is explained in the accompanying example.

Indirect Labor

Indirect labor is also measured for cost control and for establishing pay incentives. Inasmuch as the average textile plant will have approximately one-half as much indirect labor as direct labor, the importance of applying controls and incentives to the indirect is readily apparent. To set up this control, time studies should be made of all Indirect Labor in each manufacturing department, and from these studies the amount of work necessary to service the direct labor can be determined.

The indirect incentive is a group proposition and all indirect help in a department should receive the same percentage of premium per week earned by the performance of the department. For general maintenance crews, yard crews, etc., the total plant production is used as a basis for establishing incentives.

The straight departmental indirect incentive is applicable to all indirect help in the department, including the Overseers, Assistant Overseers, and Second Hands.

Incentive to plant superintendents, division superintendents, and the higher management functions can be applied on the total performance of all departments under their supervision, plus other factors such as waste control, quality control, cost of supplies and parts.

Examples of a typical job specification for weaving and carding are shown in the accompanying illustrations.

Controls and Administration

After the work standards have been properly set for certain conditions, the conditions, materials,

CALCULATING DAILY PERFORMANCE (EXAMPLE) OF DIRECT LABOR

Job Base Rate $.78 per hour
Production 2080 thousand picks @ .250 Units per M Picks
Unmeasured Minutes—30 Minutes
Allowed Minutes—waiting to repair breakdown—10 Minutes
Indirect work—none
Hours worked—8

2080 M Picks × 0.250 Units/M Picks	=	520 Units
Unmeasured Minutes	=	30 Minutes
Allowed Minutes	=	10 Minutes
Total		560

560 ÷ 8 Hours = 70 Units produced per hour

Under this wage payment plan the operator is paid a base hourly rate for all hours worked, plus a premium for all production units above a normal of 60 per hour. In this example the operator has produced at the rate of 70 Units per hour and has earned premium.

Total Units 560 minus 480 minutes worked gives 80 premium units.

$$\text{Value of premium } \frac{\$.78}{60} \times 80 = \$1.04$$

Base Pay $.78 × 8 =	$6.24
Premium	1.04
Total Day's Pay	$7.28

In the case of substandard operators who are not guaranteed the base pay, the pay is determined by merely multiplying the total production units by the money value per unit.

speeds, end breaks, etc., upon which the rate was set, must be maintained and g u a r a n t e e d. Changes in any of these items will require a new work standard. Controls which should be used to insure maintenance of proper standards are shown in the accompanying list.

For control of direct labor, a daily posting sheet is the source of all information pertaining to productive effectiveness. This sheet lists each operator by name, hours worked, total Units produced, Unit Hour which is the actual effectiveness above or below normal, premium earned, allowed time, unmeasured time, indirect work by direct labor, for each day of the week. This sheet is posted in the department daily and provides the operators and supervision with a record of their previous day's performance.

A Weekly Analysis Sheet is used for control of both Direct and Indirect labor and costs. This analysis gives management a picture of the effectiveness of each department and a yardstick for comparison between departments. Some of the most important items of information are:

a. Total Units of Production
b. Direct Unit Hour
c. Indirect Unit Hour
d. Total Unit Hour including both Direct and Indirect Labor
e. Direct Payroll
f. Indirect Payroll
g. Cost per Standard Dollar or the percentage of actual cost over the standard of $1.00

The analysis sheet provides the immediate supervision with pertinent information on the operation of his department for the week, showing production effectiveness, cost, and an analysis of the indirect labor. For higher management the total Unit Hour figure gives a ready indication of the productive effectiveness, and from the cost per standard dollar a comparative cost figure. This is a tool highly valued by management for control purposes and comparisons between departments and mills.

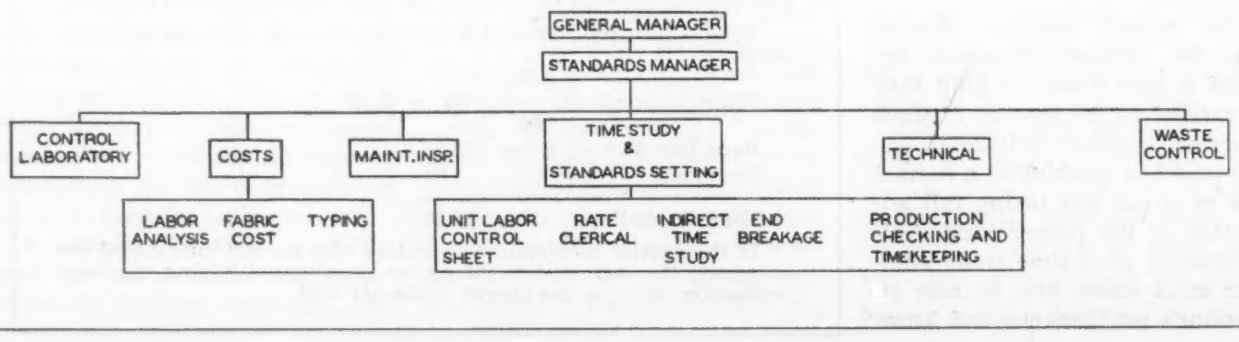
The accompanying illustration is an example of a complete organization chart for a standards department in a large mill. Certain functions as shown in this set-up are common to most textile plants. However, some functions will bear further explanation.

Technical Processes. Technical work is carried on by a group headed by a competent textile engineer. The functions are dual. First, the group is charged with the responsibility of setting up for the time study engineers the correct standards on such variable physical items as speeds, twist gears, twist constants, draft constants, package weights, cycle times, traveler sizes, etc. In con-

CONTROLS TO INSURE MAINTENANCE OF STANDARDS

1. Periodic checking of speeds, with immediate correction of any speeds off standard.
2. Periodic end breakage checks. Some variations are to be expected. Variations from standard of enough to cause a 5% change in rate should be examined for conditions that can be corrected. If it is not possible to correct these conditions immediately, the rate should be voided until the conditions have been brought back to standard or the rate should be adjusted to the new conditions, either higher or lower as the case may require.
3. Prior request from mill supervision for any change in speeds, twist, pulleys, etc., and approval by Standards Department. This keeps the Standards Department informed of changes that will result in changes in rates and costs.
4. Laboratory control of cloth weights. The Control Laboratory authorizes changes in yarn or roving sizes necessary to maintain standard cloth weights. Any such changes may require a change in the incentive rate on the particular yarn in question, as it may vary the work required of the operator. This function is also highly important if cloth is sold by the yard inasmuch as the cost of material is figured on a standard weight per yard and any increase over this standard weight will result in a loss on material. The standard weight must not be allowed to become light because customer specifications must be maintained.
5. Machinery Inspection. Inspection of machinery discloses improper oiling, fixing, maintenance, and repairs. This inspection should be reported in such a way as to point out machines by number and department, part or parts neglected or missed, and such pertinent information necessary to improve the maintenance program.

EXAMPLE OF A COMPLETE ORGANIZATION CHART FOR A STANDARDS DEPARTMENT IN A LARGE MILL



BLANK MILL, INC. OPERATION NO. JOB SPECIFICATIONS

EQUIPMENT Saco Lowell & Saco Pettee 40" Cards 50" Cylinder Diameter at 165 R.P.M. 27" Doffing Cylinder at 10.0 R.P.M. 4" Calender Roll at 76 R.P.M.	PLANT DEPT. DATE
OPERATION DATA- 3.39 Hours lap runs 12.97 Lap pounds per hour at 98% 12.32 Net pounds per hour delivered 58 Minutes per doff 3.48 Doffs per lap .295 Laps per hour 2.36 Laps per 8 hours .20 Sliver breaks per lap .20 Split Laps per lap Cards stopped 2% of time for stripping 5% loss in weight for motes and fly 1.56 Units per card hour 1.3 Allowed Minutes per card Hour	OPERATION Card Tender — 32 Prod. Gear, 2½ Prod. Pulley, 6½ Lickerin " , 12 Draft Gear SIZE 307 White 15/16" Staple SPEC. STOCK RECEIVED 45.5 Yards 16 Oz. Lap — 45.5 Lbs. STOCK DELIVERED 51 Grain Sliver 12.0 Lbs./12" Can Unit Value 5.3 PER Lap OPERATION BASE RATE C. PER HOUR STANDARD COST PER

.46 Cards - 72 Unit Hour Load

ELEMENT		NORMAL MINUTES PER Lap
Lap Laying		
1. Prepare lap before laying (including walking card to card)	.35 N.M. x 1	.350
2. Run up pieces (pull pin, break out pieces, walking, lay in pieces and dispose of waste)	.50 N.M. x 1	.500
3. Break out, lay lap, (line at a time) pull pin, if necessary	.30 N.M. x 1	.300
Doffing		
4. Push empty cans to cards and distribute	.12 N.M.	
5. Doff pull cans and place empty cans	.12 N.M.	
6. Deliver full cans to drawing	.11 N.M.	
7. Mark sliver with chalk	.04 N.M.	
	.39 N.M. x 3.48 Doffs/lap	1.357
Repair Breaks		
8. Repair sliver breaks	.60 N.M. x .20 Occ./Lap	.120
9. Repair split or broken laps	.40 N.M. x .20 Occ./Lap	.080
Patrolling		
10. Patrol to repair all breaks	.25 N.M. x .40 Occ./Lap	.100
11. Patrol to lay laps & misc. patrolling	.68 N.M. x 1	.680
12. Clerical	.15 N.M. x 1	.150
Cleaning		
13. Wipe fronts with waste (including walking) 4 per 8 Hours	.35 N.M. x 4 = 1.40 N.M.	
14. Mop fronts and sides at front (including walking) 1 per 8 hours	.65 N.M. x 1 = .65 N.M.	
15. Mop backs - sides at back (including walking) 1 per 8 hours	.85 N.M. x 1 = .85 N.M.	
	2.90 N.M. ÷ 2.36 Laps/8 Hours	1.226
	Total	4.863
	10% Fat. Allow.	.486
	Total	5.349

SUPERSEDING JOB SPEC. NO. JOB SPEC. NO.

REASON FOR CHANGE SHEET OF

Typical job specification sheet for card tender's job.

junction with the mill superintendent it arrives at the best possible machine set-up with the idea of establishing standard machine set-ups.

Secondly, and more important, the group is charged with the responsibility of maintaining the conditions under which the rates are established.

Maintenance Inspection is done by a group composed of former overseers, fixers, section men, loom fixers, etc.; this group makes periodic checks on the quality and thoroughness of the Maintenance Department. Incentive rates can be affected to a degree by the mechanical condition of the machinery. This group inspects all machinery thoroughly — every nut, bolt, shaft, bearing, gear and working part—and the results of this inspection are forwarded to the Maintenance Department and the Mill Superintendents.

Waste Control is handled by a department that has two main functions to perform. First, collect, dispose and record all waste produced in the plant by opera-

(*Continued on page* 142)

Fuller E. Callaway, Jr., the new chairman of ACMA, in his office; Rex, a war dog, is his constant companion.

Thoroughness Personified

A word picture and brief biography of the new Chairman of the Board of Governors, American Cotton Manufacturers Association— Fuller E. Callaway, Jr.

The First Callaway: "Down in West Georgia there lives a man who is literally in a class by himself. . . . As far from being eccentric as it is possible for a sane and healthy mind to be, he yet has certain little peculiarities which make him stand out in a rather unusual way. . . . His industry was continuous, his judgment of men enabled him to gather around him a crew of enthusiastic and capable men who have steadily shared his fortunes. . . . [He] is essentially a dreamer and a builder. . . . [Business] is always good with him. Grasp that and you begin to get a key to the man. . . . Big man? You bet!—any old way you take him." ("Cotton," June 1917: "A Southern Industry Builder," Fuller E. Callaway, the new president of the American Cotton Manufacturers Association.)

The Second Callaway: "And so, investing his son with no more material capital than he himself started with, he bade him go out into business 'on his own' . . . characteristic in his business activity is his belief in having a plan and sticking to it. . . . Quality is a watchword . . . [he is] insistent upon having the highest quality put into the products of his plants. . . . A tireless worker himself, and by his own consistent and persistent application inspires this same attitude among his associates in his extensive and diversified organization. Retains ideal [of father's statement] that he was 'making American citizens and running cotton mills to pay the expenses'." ("Cotton," May 1931, "A Trustee Accepts the Trust," Cason J. Callaway, the new president of the American Cotton Manufacturers Association.)

The Third Callaway: A couple of decades back, a young fellow learning the waste business was taking care of the office while the boss got a haircut. Only that morning the young man had been given "tradin' privileges," which in the vernacular of the trade meant he could buy and sell on his own judgment, but if a personification may be used, the Valley Waste Mills at LaGrange was probably casting a skeptical glance over its shoulder at the boy sitting by the telephone.

Surely enough, it rang! A man in Atlanta asked to speak to someone with "tradin' privileges." The boy, whose nickname was "Shorty," confidently told him that he was at the time "talking to a tradin' man." The boy knew waste terms and waste prices, and the upshot of the conversation was that he bought twenty cars of peeler strips.

In a few minutes, a stenographer interrupted "Shorty's" reverie as to his first big business deal with the information that the exchange had been closed because it was Government crop estimate day, and the young fellow then realized that he had made a decision, and executed a contract, without first having gotten all of the facts. When the boss returned, "Shorty" told him what had happened. The boss knew what day it was, and knew a bearish report was indicated. He called the waste dealer in Atlanta and settled the contract for a loss of eighteen thousand dollars. A perfectly legitimate deal had been made, but the young "tradin' man" had been taken—

because he had not secured all of the facts first.

Failure can be a spur to success and that young fellow is the new Chairman of the Board of Governors of the American Cotton Manufacturers Association, the highest honor that southern textile men, as a body, can bestow upon a contemporary.

But don't get the idea that he's going to run one of the biggest jobs in the industry the same way he handled that first waste deal. That was two decades ago, and a lot of water has gone over the dam; then too, that young man has reached the ripe old age of forty and two years ago retired from his duties as president of a large chain of mills.

By all standards and measurements he knows the ropes. That first waste deal is now, even to him, a humorous incident—but one which has prevailed as an object lesson in the direction of one of the most successful textile enterprises in the country.

Our story could stop with the boy being "taken" and still be good; it would not faze the man—he has a sense of humor. But that first failure was the key to his success: he learned to get all of the facts first. With that background, it's only fair here to carry on with the story of Fuller Earle Callaway, Jr., who at the age of thirty-eight had retired as president of Callaway Mills, LaGrange, Ga., but who even at that early age had served for ten years as its chief officer.

Fuller was born in LaGrange in 1907, the son of Fuller Earle Callaway and Ida Jane (Cason) Callaway. Cason Callaway is his older brother. Fuller's being elected to serve as head of the American Cotton Manufacturers Association is unique, not only because of his age, but because for the first time in the history of the association a father and his two sons have been so honored.

An interesting sidelight is that the first of these biographical sketches was prepared in the year 1917, when Mr. Callaway, Fuller's father, was serving as president of the association. His age was not disclosed in the story, but Mr. L. L. Arnold, the then editor of "Cotton," reported that he "looked to be about 35." Cason was 37 when he held the office in 1931, and Fuller is just turning 40.

If Fuller is no longer active in the management of the mills, you may ask why he accepted the job as head of ACMA, for obviously it is a time-consuming and often thankless task, as other men who have held the position can testify.

Part of the answer, and only part, may be found in the preceding paragraphs, and it is doubtful if Fuller himself has considered it. But he is sentimental. This may not appear to be consistent with his dogged determination to get all the facts on any situation and to be guided by them, his intense thoroughness and concentration on the business of the moment, which amounts to a fetish, and his personal dignity, but the fact remains that he is a sentimentalist at heart.

But over and above any other reason that may be attributed to his accepting the position is his intense interest in the textile industry, and his personal feeling that the time has come for him to serve, and serve he must to the best of his ability and at whatever cost to his personal time. His interest in the industry has been proved time and again, and this is only a further manifestation of it.

We are talking about a man who relinquished active business responsibilities at the age of 38. Why at 38? Because he saw his father pass on prematurely from overwork; he saw Cason profit somewhat from this mistake by retiring earlier—and Fuller learns quickly from the experience of others.

Fuller's relinquishment of his active duties as president of Callaway Mills is not retirement in the accepted sense. His interests are manifold, but his "primary duties," to pluralize the army term, are cattle breeding and raising, the Institute of Textile Technology at Charlottesville, Va., and the Callaway Community Foundation, which is a not-for-profit organization that was established more than 25 years ago and is devoted

Fuller in his electronic workshop. Photography is another hobby.

to the civic, educational and spiritual interests of the citizens of the Callaway Mills communities. He is a member of the executive committee and board of directors of Callaway Mills.

Why cattle breeding and raising? First, Fuller has always loved animals; he enjoys being around them, likes their odor, the fresh warm heat of their bodies, likes to caress them—in short, he just likes animals. For someone to like something is not unusual: Cason likes the soil and desires only the land that adjoins his property. Fuller cares nothing for land, except that it provides feed for his animals.

In addition to liking animals, he raises registered stock because he believes that he can help the farmers of the state to improve the grade of beef cattle by providing the farmer breeding stock at a figure which the farmer can afford. Though Fuller is no longer active in mill management, he is not working with cattle as a hobby. With him it is a business.

It has been mentioned previously that with him thoroughness is a controlling trait of character. When he began a study of animal husbandry, he read over two hundred books and articles on one phase alone, a matter of testing. The sum total of it all he boiled down to fifteen notebook pages. That's really getting to the meat of the problem.

When he became an executive in the mill business, he discovered that about 90 per cent of the textile knowledge was contained in the heads of overseers, etc. Much of it was erroneous. Perhaps only one man in a plant knew, for example, how to make a specific style. One of his first jobs was to correlate the technical information and consolidate it in manual form so that the knowledge could be used by more than one plant in the organization. Fuller's thoroughness paid dividends.

The Institute of Textile Technology is another of his interests. Long ago he visualized the need for an organization, within the textile industry, that would be equipped and staffed to carry on basic and applied research, and at the same time offer to the industry an institution of higher learning for textile men. It is a credit to his courage, vision, faith, and inherent ability that he initiated action and saw it through so that this technical institute now serves textiles in its broadest sense. He still serves as chairman of the board of trustees of the Institute.

Fuller's foresight and action in the realms of research are not limited to his activities abroad or to the selling of an idea to other people; when he entered textile manufacturing, he started within his own organization an effective research unit; so, he not only talked research, but did something about it for his own organization as well as for the industry at large.

Fuller at the age of 9.

It is his opinion, and there are few arguments against it, that research and research accompanied by action will provide the industry with a maintenance of high hourly income and increased efficiency per operative—the former necessary to maintain the American standard of living and the latter essential in meeting competition from low-wage foreign countries.

In order to know the man it is well to review briefly a few of his accomplishments and interests. He attended LaGrange High School, was graduated in textiles from the Georgia School of Technology in 1925, and later completed a course in business administration at Eastman Business School, Poughkeepsie, N. Y. Before joining the Callaway Mills organization, he proved himself by working with an outside firm of public accountants.

His first job in the mill started the day he was 14 years and 6 months old, which was the state minimum age at the time, and there are those within the Callaway organization now who will tell you that Fuller not only can run every machine in the plant, but can tear it down and put it back together.

In 1927, Fuller joined the Callaway organization in the Valley Waste Mills plant. His rise in the organization was rapid, and he was elected president of the parent company in 1935. During his active connection with the company, his working day, by self-imposition, was longer than that of anyone else in the organization. He has always felt a keen sense of duty to his job and to his position in LaGrange, and early learned to take orders as well as to give them; in his own interpretation he was hired by the board of directors to run the job, and whenever he accepts any assignment he is going to run it on just that basis.

Fuller has served annual terms as treasurer, vice-president, and president of the Cotton Manufacturers Association of Georgia; for several years he was a director of The Cotton-Textile Institute, Inc., and was its board chairman in 1944. He has been a director of the American Cotton Manufacturers Association for several terms, and has served as its vice-president. The interests of Georgia Tech are still close to his heart; he is a member of the board of trustees of Georgia Tech Alumni Foundation, and conceived and was largely responsible for the establishment of Georgia Tech Research Institute.

His contributions to and activities in the social and economic life of his community, state and nation are numerous and will not be detailed here, but to indicate the scope of the man it should be chronicled that he has served as a member of the board of directors of the National Association of Manufacturers; has been an extremely active and effective supporter of the Boy Scout movement; has served as chairman of the board of deacons of the First Baptist Church of LaGrange; and was during the war a Lieutenant Colonel in and commanding officer of

the Third Battalion of the Georgia State Guard.

International recognition of his standing in the textile industry is illustrated by his election in 1945 as a Fellow of The Textile Institute of Manchester, England, the leading scientific textile society of the world; an honor that is carried by less than 12 living people in the United States.

In 1930 Fuller was married to Alice Hinman Hand of Pelham, Ga.; they reside, with their two children, Fuller Earle Callaway III and Ida Cason Callaway, in the paternal homestead, "Hills and Dales" in LaGrange where lovely and charming Alice presides with all the graciousness of the Old South.

Some people have said that Fuller is austere and cold-blooded in business. That impression may derive from his naturally reserved nature. It is true that he relaxes more when away from LaGrange, his home town, but this is true of any normal person. And if thinking a problem through to its logical conclusion, and considering not only the logical outcome but any alternative thereof, and then executing with all the facts in hand is cold-blooded, then he is. If a man has failings, his home town and his associates are poor places to look for them.

Fuller's sense of humor runs to the practical side. Associates are never quite sure of what to expect next. Jokes of which he is the butt are accepted with the same enthusiasm as those he plays on others. The sense of humor in some men has been restricted because of their position in life, and because there has been little time for fun as the average person knows it. This may be true of Fuller Callaway, but there is more time to laugh now, though he contends that he has had fun all of his life.

Besides his work, his hobbies are electronics (see accompanying photos of his electronic workshop), photography, and study. The first commercial broadcast in the United States was heard by him on a one-tube set that he had built. He has an insatiable thirst for knowledge and in his quest for information he goes to extremes until he

Thoroughness is a controlling trait of character. Left, concentration on the business of the moment. Below, every word read and approved, he signs.

thoroughly posts himself on a subject. If written material is not available, he is not discouraged, but sets out on his own and operates from scratch. His quest usually develops into something tangible.

Shortly after joining Callaway Mills, Fuller encountered a complicated financial structure that had resulted from the growth of the organization, with each plant owning stock in the others, and they in turn owning each other, until it appeared to be like the proverbial snake that had swallowed its tail. Efforts to re-organize the structure into one consolidated corporation had defined the best efforts of the accountants. Fuller studied the set-up and was stymied himself until he remembered the old physics problem of the magnetic attraction of the sun for the earth, of the earth for the moon, and of the moon for the sun. He realized that here was a counterpart, and proceeded to apply the laws of physics to the stock situation. Surely enough, he came up with a formula by which the stock holdings of the various companies involved could be converted accurately and equitably into one corporation. The accountants found his formula to be sound, and the change was made.

When Fuller gave up his duties as president of Callaway Mills, he constructed his own office building, at the entrance to his cattle farm, where, with his capable staff, he runs his business. He does not dress for show, but for comfort and practicality, wearing brogans, army slacks, a plaid shirt, and, for out-of-doors work on the range, a fleece-lined shortcoat. He has always wanted a job that would keep him out in the open; he has always wanted a business that was 100 per cent his own—he now has both.

Fuller may appear to be reserved or reticent in a crowd, or upon first acquaintance, but he thoroughly enjoys the company of close friends. He is in his seventh heaven when he can go West on a camping trip with his wife, and join the lonely sheepherders of the western plains and mountains or make friends at some isolated resort; there he is accepted at his face value, without position to maintain and without position to influence. There he is just another man on vacation, and in such circumstances he has been known to make-up as a southern mammy and attend a masquerade ball completely uninhibited and to enjoy it immensely.

Suppose we take a quick look at some of his other characteristics: Needless to say, he is efficient; neat in action and in manner, almost to the point of old-maidishness; a good amateur cook (often prepares meals for the whole family and for "company," too); strict in self-discipline, which is carried forward in his expectation of others; absolutely fair to others at all times, often to the point of penalizing himself; is less susceptible to flattery than most men; and, with all his accomplishments, has an almost unbelievable self-modesty.

Processing Procedures for Modern Yarn Dyeing

By ROBERT W. JOERGER
Chemist, Franklin Process Co.

CONCLUDING his series on modern yarn dyeing with this seventh article, Mr. Joerger discusses the dyeing of cotton yarns with naphthol colors. The six previous articles in this series appeared in March, April, May, July, and September 1946 and March 1947 issues. Another series of articles by Mr. Joerger on the subject of rayon yarn dyeing will begin soon.

Article 7

AN EXCELLENT series of articles, written by Arthur E. Hirst, appeared in Cotton (Dec. 1944; and Feb. & March 1945) under the title, "The Napthol Colors in Dyeing and Printing." Although written about piece-goods applications, there was a good review of the history and chemistry of this class of dyes which need not be repeated at this time. However, dyeing of cotton yarns differs in many important respects, and these differences will be outlined in this article.

The dyeing of the old Para Red (B-naphthol: paranitraniline combination) was relatively easy on piece goods where the B-naphthol solution could be padded on and dried in, followed by open-width coupling; but it was more difficult and troublesome on yarn which has no affinity for the beta-naphthol and which cannot be dried quickly or evenly, so that only small lots could be handled at once.

With the introduction of the Naphthol AS series*, solutions could be prepared which did have affinity for the yarn and also could withstand air exposure and undergo wet-coupling with the many new developers.

To illustrate the greatly enlarged field, one dyestuff manufacturer lists 28 different naphthols which can be combined with any one of 50 developers (diazotized bases or the corresponding salts), these combinations alone producing some 1400 different dyeings, not taking into account many others made possible when more than one naphthol or developer is used in a mixture.

Naphthol and Developer Combinations

It must be pointed out that these combinations are not mixed in the manner of the much simpler direct or sulphur dyes, for the components may not be compatible or may have such different exhaust or coupling speeds that even dyeings would be difficult to obtain. Generally, where the shade requires a mixture, the dyer would much rather use together two or more naphthols of similar properties than a single naphthol coupled with a mixed developer.

Nor are these hundreds of shades all of interest; many are quite similar (numerous reds), while others have inferior fastness. Yet the important naphthol combinations which have been adopted for practical work cover a wide range: yellows, oranges, pinks to crimson; reds, scarlets, wines; browns, blues, and blacks; violets and a green. Some are extremely bright, and many can be produced at relatively low cost.

Naphthol Dyeing Defined

Naphthol dyeing consists of building an insoluble azo dye directly in and on the fiber by bringing together the two components which are applied separately. The alkaline solution of the naphthol is dyed on, and then the yarn is placed in a slightly acid solution of the diazotized base, followed by proper rinsing and soaping.

These principles, when applied to piece-goods dyeing, are efficiently and uniformly carried out by padding the naphthol and drying, coupling, and rinsing in the open width. But with bundles or packages of yarn, the naphthol cannot be held in place by drying, so some degree of substantivity is required and the excess removed by hydroextracting or salt rinsing or both; the coupling must be fast and reliable enough to give reproducible results, which, in general, rules out the blues from yarn dyeing.

In both the dissolving of the naphthols and the preparation of the diazotized bases, each of which requires the right amounts and concentration of chemicals, the manufacturer's information should be strictly adhered to, while control of the two major steps and numerous details are very necessary to produce work of the right match and good fastness.

Dissolving Various Naphthols

The details for dissolving the various naphthols vary somewhat, but a general description of the methods follows.

* AS stands for Analin-Saure. Naphthol AS, the analine salt of beta-oxynaphthoic acid, was the first of this series, of which many substitutions exist.

The hot dissolving method consists in pasting the naphthol and a small amount of sulphonated oil or protective colloid with 15-20 parts of hot water; 0.75-1.5 parts of caustic soda (dry or equivalent solution) are added, and the whole boiled until a clear solution results. After cooling to 120-140° F, by adding an equal volume of cold water, the formaldehyde is added where necessary.

In the cold dissolving method, the naphthol is wet out with 1.0-1.5 parts of denatured alcohol or cellosolve, 0.20-0.25 parts of flake caustic soda is added, and then 1-2 parts of cold water. As the caustic soda dissolves, the warmth generated is sufficient to give a clear solution, but too much caustic will give a precipitate. This is an easier method than the first, and though the alcohol is an added expense, the convenience favors its greater use. The remainder of the necessary caustic totalling to 1.25-2.0 per 100 gallons is first added to the dyebath along with any of the auxiliary agents, and then the dissolved naphthol, to which the usual amount of formaldehyde has been added.

Even more convenient for the dyer are the sodium salts of a few naphthols which are marketed as naphtholates. These dissolve readily in water and are about one-third strength.

Use of Formaldehyde

The amount of formaldehyde varies from zero to 0.5 or 1.0 times the weight of the naphthol. It should never be added to the hot solution or where the naphthol is applied at high temperatures. Its purpose is to stabilize the naphtholated material and make it resistant to fading when exposed to air or dyehouse fumes. Without it, some sensitive naphthols develop much weaker shades in the exposed spots, causing very uneven dyeings.

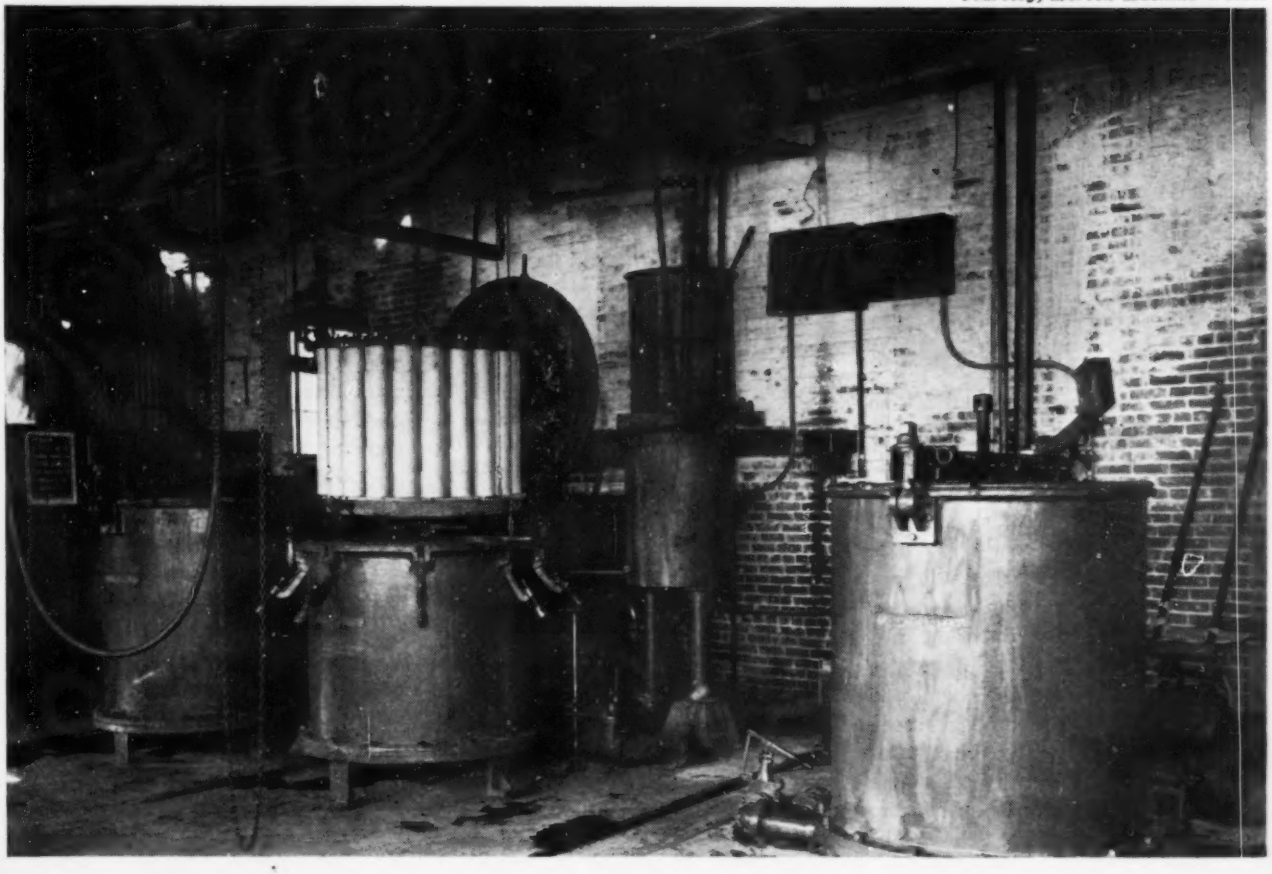
For that reason, yarn saturated with naphthol solutions should never be left lying around but should be developed as soon as possible, or as soon as the bundles (if hand impregnated and wrung) make a lot large enough to couple. If handled in the hydro-extractor, they should be wrapped in cloth wetted with the same naphthol solution to protect from air and light.

Some naphthols do not require addition of formaldehyde, while others (notably Naphthol AS-G) are destroyed by it, but its value is proved, though it may be omitted in a closed system such as package machines.

The substantivity of the naphthols is greatest at 85° F, though a temperature of 120° F is commonly used to aid penetration; in padding piece goods or warps, a temperature of 200° F may be used, as it reduces exhaustion (tapering off) while greatly enhancing penetration. For such work, even the non-substantive group, which leave 75-90% of the naphthols behind in the dye liquor even under best conditions, are practical; but for ordinary yarn dyeing, they are not generally used except in concentrated solutions or

A system for dyeing yarn in the package form, wherein a package dyeing machine is used in conjunction with two rinsers. Boil-out is carried out in the first kier, dyeing is done in the second, and rinsing is accomplished in the third. Advantages claimed for such an installation are reduction of costs and continuous dyeing.

Courtesy, Morton Machine Works.



Courtesy, Smith, Drum & Co.

An individual package extractor.

as standing baths where small additions for subsequent lots are made to obtain uniform depths.

However, naphthol solutions are none too stable, and the standing baths can be used only for a day or two. Therefore, the substantive group, which exhausts to the extent of 50-90%, are more practical. Addition of common salt (up to 20%) sometimes produces such a degree of exhaustion that fresh baths can be employed for every batch.

Where mixtures of naphthols are used, the degree of exhaustion of each has to be considered. The value of the second group is not only in convenience and economy, but in that they produce cleaner and faster dyeings. Even here, the excess naphthol should be removed before coupling to minimize loose surface precipitation of the insoluble dyestuff. This may be done mechanically by hydroextracting the bundles of yarns, or the packages where the Obermaier system is employed; or by rinsing with a cold common-salt solution, 10-20% on goods weight.

Naphthols AS-TR and AS-ITR, even though they fall in the low-substantive group, can be treated this way, but the others would lose too much strength by this procedure.

Coupling Solutions

The preparation of the coupling solutions is much more complicated than that of the naphthols. Each is a chemical individual, requiring amounts of muriatic acid, nitrate of soda, and neutralizing agents within close limits; they require ice to keep the temperature low, and time must be allowed for the reactions to take place. The inorganic acid must then be neutralized with soda ash, sodium acetate, chalk, or bicarbonate (depending on the particular conditions), and finally, they are made weakly acid with small amounts (1-2%) of acetic acid, but other times formic acid or aluminum sulphate. The purpose of these is to destroy the caustic soda of the naphtholate on the yarn so that the coupling can proceed more quickly and uniformly. Common salt is also added to these solutions, 20-50 lbs. per 100 gallons, to prevent the naphthols from bleeding off before coupling is complete.

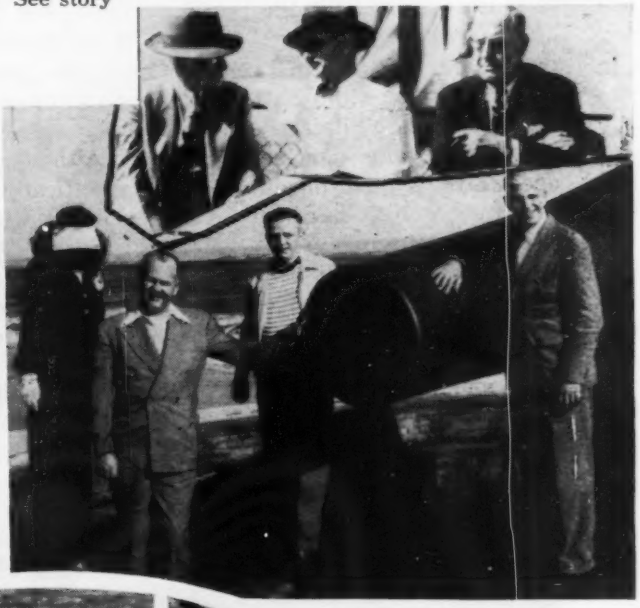
A dispersing agent helps keep any loose or excess dye formed from precipitating on the yarn by keeping it in a finely divided state in the liquor (which is dropped), so it can be easily rinsed or soaped off later. The fast color salts are made from the bases, stabilized, ready-to-use powders, which are merely dissolved in slightly warm water and added to the dyebath with the same additions of salt, dispersing agents, and small amounts of acid as where the diazotized bases are employed. They are much cleaner, easier, but more expensive to use, costing a little less than the bases but running 20-25% in strength. However, where small, infrequent, or a great variety of lots are run, they are much in demand because of being much more flexible and less troublesome.

When the conditions are right (proper acidity, circulation, temperature, etc.) the coupling should be complete in 30 to 45 minutes. The liquor is dropped, cold rinses given until water runs clear, and then the yarn is aftertreated with hot detergent solutions to remove the excess dye, to develop the correct shade, and to obtain the maximum fastness to light, to chlorine, and to rubbing. Usually this consists of a boiling solution of soap and soda ash (2-3 lbs. and 1-2 lbs. each, respectively, per 100 gals), though with certain combinations treatment should be made at 160° F.

Other detergents have been found to be more efficient, especially where hard water may cause precipitates with soap, or has already caused precipitates during the dyeing, or where alum salts are present; in such cases, syn-

(*Continued on page* 147)

THE ALABAMA Cotton Manufacturers Association met at the Hotel Buena Vista in Biloxi, Miss., April 14-15. Business sessions were held during the morning hours, with the afternoons and evenings being given over to relaxation and the renewing of acquaintances. Claude M. Elrod of Boaz (Ala.) Mills, Inc., was elected president for the ensuing year; and Homer M. Carter, Pepperell Mfg. Co., Opelika, was elevated from president to chairman of the board of the association. Photographs on this page show many of the mill men and suppliers in attendance. See story on page 113.



Pneumatic Broken End Collector

Device replaces scavenger roll on spinning frames. System was tested for several months at Central Plant of Avondale Mills, Sylacauga, Ala. Conclusions drawn from tests are presented here.

THE PNEUMATIC yarn and broken end collector for ring spinning frames, a device which eliminates the scavenger roll, has been tested on four frames for several months at the Central Plant of Avondale Mills, Sylacauga, Ala. The test installation has proved satisfactory and additional spinning frames will be so equipped in the near future.

As shown in the accompanying photographs, the system consists of a flute located in the position of the scavenger roll; a central trunk running the entire length of the frame under the creel; a collector unit with filter box at one end of the frame; and a motor to operate the system pneumatically. The flute, which has suction orifices, is connected to the central trunk by rubber fittings; the flute may be removed.

When an end breaks, the stock is drawn through the orifice in the flute, passes to the central trunk and into the collector unit, where it may be removed at specified intervals.

Inasmuch as the scavenger roll is eliminated, the training of spinners is said to be easier because the trainee is not required to learn how to remove and strip the scavenger roll. She devotes her time to creeling and keeping ends up. However, it is necessary that the spinner have keen eyesight to determine when an end is down; there is no lap around the scavenger roll to attract her attention. Thus, the system eliminates cleaning of scavenger roll, but requires systematized patrolling of the sides.

Although the system was not specifically designed for cleaning, additional cleaning of the yarn is secured when small pieces of leaf are drawn into the orifices. An inspection of the stock in the collector unit offers proof of the foregoing.

Roll necks and flutes are kept cleaner when the pneumatic system is used, it being the experience at Central that these places do not become as dirty in 144 hours of operation as the frames not equipped do in 40 hours.

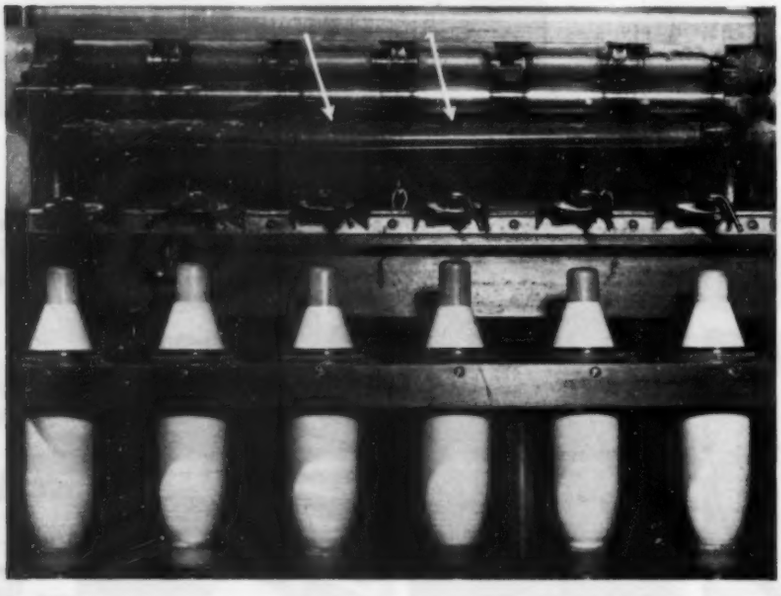
In keeping the rolls cleaner, some oily waste is drawn into the collector unit along with the white stock, necessitating removal of the oily waste before the stock is reprocessed in the opener room. It is not necessary to run the stock from the collector unit through the garnett machine since it is not twisted.

The yarn produced from frames equipped with the pneumatic system is said to be of higher quality, not only from the standpoint of cleanliness, but strength. Thin places in the stock have been known to break down the end instead of to spin into the yarn.

Although the test installation at Central is not sufficient to equip a full spinner's job, it is believed that with the elimination of scavenger roll cleaning the spinner will be able to run additional sides on a job fully-equipped with the pneumatic system. Also, when one end breaks there is no breaking of ends on either side.

On the test installation, each spinning frame is equipped with the complete unit; however, where a large number of frames are to be equipped, a central system may be used advantageously, and can be combined with an existing or new air conditioning installation.

Trade-named "Pneumafil" the



The flute with orifices is so located as to draw the stock from the rolls when an end breaks. A certain amount of trash is also removed. In this photo, which has not been retouched, the ends are down on the two center bobbins. Arrows indicate stock from rolls passing into orifices.

system was developed several years ago. It was introduced in the ring spinning mills of Switzerland, where it is reported that 90% of the mills have been so equipped. In this country Pneumafil is manufactured by Pneumafil Corporation, 2516 Wilkerson Boulevard, Charlotte, N. C.

Showing the working parts of Pneumafil. The central trunk, which passes under the creel, leads to the collector box on the end of the frame. The filter box is at left. Waste is removed through door on right side of collector box. Motor operates the system. In this photo all ends are up. Arrow indicates position of flute.

Left to right, Roscoe O. Roberts of John P. King Mfg. Co., Augusta, Ga., John S. Turner of Bibb Mfg. Co., Columbus, Ga., and John Hampton, Fairfax Division, West Point Mfg. Co., Fairfax, Ala. Messrs. Roberts and Turner led the carding and spinning discussions, respectively.

Carding-Spinning Discussed by Georgia Operating Executives

MUTUAL PROBLEMS in carding, spinning, winding, twisting, and warp preparation were the subjects discussed at one of the best attended meetings in the 25 years of existence of the Textile Operating Executives of Georgia when they met in Atlanta on March 21.

Held in the Chemistry Building at the Georgia School of Technology, the meeting was presided over by Joe L. Jennings, West Point Manufacturing Co., general chairman. Discussion on carding was led by Roscoe O. Roberts of John P. King Manufacturing Co., Augusta, Ga., and the spinning discussion was led by John S. Turner, Bibb Manufacturing Co., Columbus, Ga.

The meeting had been planned well in advance. Twelve questions on carding and thirteen questions on spinning, twisting, winding, and warp preparation had been selected by the executive committee and submitted to all of the Georgia textile mills for study and consideration prior to the meeting, with the request that each mill answer as many of the questions as possible. Mr. Jennings announced that 29 mills—representing over 1,250,000 spindles—had answered the questions by mail. These answers had been prepared in the form of a printed booklet by Robert W. Philip of Callaway Mills, LaGrange, Ga., secretary-treasurer of the association, and booklets were mailed to every mill in the state on the night preceding the meeting.

A highlight of the program was an inspirational talk by A. B. Edge, Jr., president of Callaway Mills who, among many other prominent positions in the industry, is president of the Cotton Manufacturers Association of Georgia. Pledging the support of the Cotton Manufacturers Association to the Textile Operating Executives of Ga., Mr. Edge praised the latter for its contributions to the war effort.

He emphasized that the group is bound together by ties of friendship which is the best basis possible for solving mutual problems. The fact was stressed that the desire to obtain technical knowledge by friendly contact with fellow executives in the state is a sound objective which can be attained in no better way than by membership in the Textile Operating Executives of Ga. Mr. Edge concluded his remarks with several humorous illustrations, the objective of which was hints for improvement of industrial relations.

T. M. Forbes, vice-president of the Cotton Manufacturers Association of Ga., presented Mr. Edge to the assembly.

Following is a report of the open forum technical discussions with the answers-by-mail being used as background material.

The first question pertained to improvements that have been noted with the use of recirculating air systems in the opening and picker rooms. Supplementing this, information was requested as to whether lap variation can be maintained within 3/5 of an ounce (yard per yard) when using recirculating air systems. Improvement in temperature and humidity control in those rooms equipped with recirculating air systems was the primary factor indicated in answers given.

One mill reported the elimination of the dust house and its constant cleaning problem and fire hazard to be the outstanding improvement. This plant uses return air condensers. It was stated that laps are kept within 3/5 oz. variation, yard per yard, by keeping the dust filters clean. Filters are cleaned once every eight hours and ducts once during each 24-hour period. A 14 oz. lap is made in six minutes on pickers in this plant. Front and back beater speeds were reported to be 1550 and 1049 rpm, and front and back fan speeds 1510 and 1040 rpm. Continuous method of turning filter screens is employed.

Representative of another mill stated that warmer and more moist air is kept in the room. Return air condensers are used at this plant. Pickers make a 16-oz. lap in seven minutes. Front and middle beater speeds are 1200 rpm, back beater speed is 1050 rpm, front and middle fans operate at 1425, and back fan speed is 1250 rpm. Intermittent method of turning screens is used. Lap variation was said to be less than 3/5 oz. per yard.

A review of the answers received by mail indicates that the majority of the mills feel that there is no improvement in the quality of the lap made and that lap variation cannot consistently be kept within 3/5 of an ounce, yard per yard. However, there is improvement in humidity and temperature

control, a saving in fuel as a result of reduced heat loss, and less lint and dust settling on outside of buildings.

Sequence of Opening Machines

Several operating men gave their recommendations regarding use of a vertical opener in the same line of opening machinery with a No. 12 lattice opener and a Superior cleaner. The majority do use a vertical opener in the line; however, there was considerable difference of opinion as to the proper sequence of the machines in the line.

On two lines of opening machinery, each with a capacity of 1200 lbs. per hour, one mill reported better opening and cleaning by arranging the machinery with the vertical opener first, followed by a lattice opener and two Superior cleaners.

Good results were reported by another mill using a bale breaker, blender, air cleaner and Gyrator in the order named.

Still another report was that the sequence of vertical opener, two Superior cleaners, followed by a No. 12 lattice opener has been found very satisfactory.

The discussion on the subject was concluded when the superintendent of a large mill stated that they have six large hoppers feeding onto a blending apron into a Superior cleaner, then to a vertical opener, No. 12 lattice opener and finally a Centrif-Air machine.

Of the 27 mills answering this question by mail, seven reported that they would not recommend use of a vertical opener in the line, 14 operating men recommended its use, and the remainder made no recommendation due to lack of experience. Five of the 14 recommending use of the vertical opener suggested that sequence be lattice opener, Superior cleaner and vertical opener. An equal number preferred the sequence of Superior cleaner, vertical opener, lattice opener. Lattice opener, vertical opener and Superior cleaner was recommended by three of the mills.

The discussion turned from opening and picking to carding. Outline of the merits of the perforated card screens was requested, along with a statement as to whether this type of screen produces static in the work.

Perforated Card Screens

Only two reports on this question were given during the discussion meeting. One mill superintendent reported as follows: "We have 35 cards equipped with perforated screens and results have been very favorable." A typical card waste test was cited in which cards equipped with perforated screens showed 4.20% total waste as compared with 5.73% waste on cards equipped with the rib screen. A breakdown of these figures indicated that the percentage of cylinder, doffer and flat strips on machines equipped with perforated screens was higher than that on the machines equipped with the rib type screens. However, the percentage of licker fly on the machines equipped with the perforated screens was much less than that obtained with the rib screens. It was also reported that a lower grade of fly was found under machines equipped with the perforated screens, there being practically no spinnable fibers in the waste. Comparative waste figures for a period of two years were also cited. These bore out the results of the test referred to previously. No difficulty with static has been noted at this mill.

Results of an experiment with perforated screens as conducted by another mill were reported. A reduction in motes and fly had been detected with a corresponding increase in both flat and cylinder strips, according to the representative. There is little difference in the per cent of finished sliver. Tests show a slight reduction in the number of neps but apparently a slight increase in the amount of trash in the web. Static in work has not been noticed.

An analysis of answers to this question submitted by 26 of the 29 mills reporting by mail indicates that there is no more static in stock produced on machines equipped with perforated screens than machines equipped with the conventional rib screen. In addition to the merits stipulated by mills in the open forum, the written answers revealed (1) less repairs necessary, (2) easier to set, (3) better control of draft, (4) longer life. A total of 14 of the 26 mills reported no experience with the perforated screens.

"Gang Grinding" of Cards

In the open forum discussion, only one mill reported its opinion as to results obtained with the "gang grinder" system of grinding cards.

"We feel that our system gives good results," said the representative of this mill. "We are able to train specialists for the various jobs.

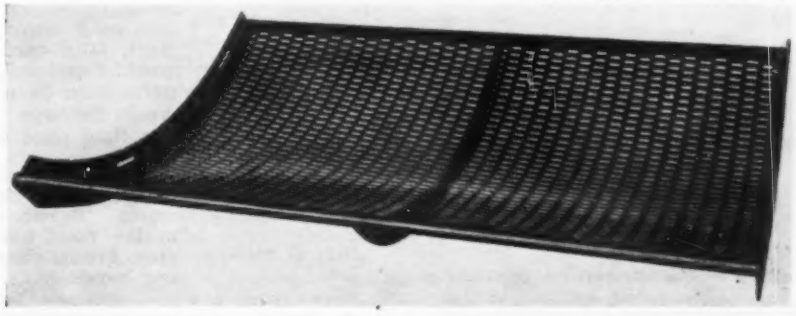
"We use four grinders on each shift, and in addition we have four setters on the first shift. Of the setters, two set backs and two set fronts.

"The grinders clean the cards thoroughly, blowing them off with air and removing all chokes. They set grinding rolls and after grinding is completed, they set doffer to cylinder and doffer comb to doffer. They also start up cards after grinding. These men grind 24 cards per shift.

"The back setters set all screens, back plates, continuous strippers, licker-ins, mote knives, feed plates, lap guides, and check feed rolls. One man sets six cards per shift.

A perforated steel waste control card screen.

Courtesy, Saco-Lowell Shops



Cleaning and Oiling Cards

As Reported by Textile Operating Executives of Georgia (by mail)

Mill No.	Production Lbs./Hr.	Cards per Tender	Cleaning Done by	Cleaned with	Details of Cleaning Method	Oiling Schedule
1	16	32	Tender	Brush & Mop	Mop cards once each 8 hrs. Sweep around cards 4 times each 8 hrs.	All moving parts, except flat pulleys, every 8 hrs. Flat pulleys, once per wk.
2	14	30	Tender	Mop, Strips & Air	Fronts wiped 4 times per shift. Ten cards mopped all over each shift on each set of cards. At grinding time cards are completely cleaned with compressed air.	All moving parts, except comb boxes, every 24 hrs. Comb boxes, twice weekly.
3	16	40	2 Tenders (1 Front & 1 back)	Mop & Air	Backs and sides are blown off once each shift and mopped once each week by back hands. Fronts are wiped off 3 times each shift by front hands.	Fast parts, every 16 hrs.; slow parts, weekly. Comb boxes, weekly. Ball bearings, 3 months.
4	18	27	Tender	Mop, Strips & Air	Mop cards once each 8 hrs. Wipe fronts 3 times each 8 hrs. Blow off cards at week-end cleaning.	Fast parts, every 8 hrs. Slow parts, every 48 hrs.
5	15.5	*	Tender	Mop & Strips	Mop cards once each shift. Wipe fronts 2 times each shift. Clean out backs each shift. Clean out under doffer one time per week each shift.	All parts, every shift. Comb boxes, twice weekly.
6	11	44	Tender	Mop, Strips & Air	Blow off cards once per week. Mop cards once each shift and wipe fronts every 2 hrs.	Fast parts, every 12 hrs. Slow parts, weekly.
7	15	23	Tender	Mop & Strips	Mop cards each 8 hours. Fronts cleaned each 2 hours.	Fast parts, every 8 hrs. Slow parts, every 24 hrs.
8	16	15	Tender	Mop & Air	On front and back of cards use waste mop and on week-ends clean with compressed air.	All parts, except coiler head, once per shift. Coiler head, weekly.
9	19	30-32	Tender	Mop & Air	Mop card each 8 hrs. Blow off on week-end cleaning.	All parts, except lap roll gears, coiler heads, and turn tables, oiled each 8 hrs. Those parts, weekly when cards are ground.
10	20	20	Tender	Mop & Strips	Mop cards once per shift. Wipe fronts every 2 hrs. Take out fly once per shift.	All parts oiled once every 17 hrs.
11	10.5	55	Tender	Mop & Strips	Mop sides, licker-in caps, arch and exposed ends of cylinders. Flat strips used to wipe off coilers and doffer bonnets.	All parts, except comb box, once per shift. Comb box, twice weekly.
12	*	36	Tender	Loom Duster	*	*
13	14.5	35	Tender	Mop & Strips	Clean out back of cards once each shift. Blow off cards once each shift. Sweep floor around cards once each shift. Wipe comb boxes, coiler heads, calender roll stands, and sand aprons once each shift. Mop cards once each week. Remove fly from under doffers on ½ of cards each week. Remove fly from under flats once each day.	Fast parts, daily. Flat brush bearings and coiler twice weekly. Lap rolls, feed rolls and doffer bearings, 3 times weekly. All comb boxes and flat chain pulleys, weekly.
14	11.5	*	Tender and Stripper	Mop & Strips	Mop cards each 12 hours. Fronts are cleaned with waste between mopping cycles. Card hands do mopping. Fronts cleaned by stripper hands.	Fast parts, once each 12 hrs. Coiler head, 3 times per week. Comb boxes, weekly. Completely oiled when ground.

(Continued on opposite page)

Mill No.	Production Lbs./Hr.	Cards per Tender	Cleaning Done by	Cleaned with	Details fo Cleaning Method	Oiling Schedule
15	12	35	Tender and Cleaner	Mop & Strips	Cleaner mops cards every 8 hours. Fronts cleaned every 4 hours by tender.	Fast parts, except comb boxes, every 8 hrs. Slow parts, every 24 hrs. Comb boxes, twice weekly.
16	14.1	41	Tender	Mop & Air	Each shift mops back and sides of card once and fronts twice in 8 hours. Compressed air used to blow cards off immediately after cleaning overhead.	Use Saco-Lowell oiling schedule, except cylinder and licker-in bearings packed by grinders at each grinding.
17	15	34-35	Tender	Mop & Air	Mop cards once daily. Blow off cards each shift with compressed air.	Fast parts, each shift. Slow parts, 3 times weekly.
18	17	24	Tender	Mop, Strips & Air	Mop sides and backs twice per shift. Wipe fronts every 2 hours. Clean calender roll clearers and feed roll scavengers once per shift. All parts blown off and mopped week-end.	Fast parts, each 8 hrs. Slow parts, each 40 hrs. Comb boxes, each 40 hrs. Anti-friction bearings, 30 days.
19	7	35	Tender	Mop	Mop cards daily.	Fast parts, daily. Slow parts, weekly.
20	12.5	42	Tender & Lap Haulers	Mop, Strips & Flap	Clean fronts once per shift with waste. Flap off fronts three times per shift. Lap haulers mop sides once each shift. Licker-in bonnets cleaned off 3 times per shift by tenders.	Fast parts, each 8 hrs. Comb boxes, each 24 hrs. Binder pulleys, 3 times per wk. All others, once per wk. Grease packed bearings, 3 months.
21	12	150	2 Back Tenders 8 Front Tenders 2 Lap Rackers 1 Mop Man	Air, Mop & Strips	Back hands blow off backs and sides of cards twice each shift; clean scavenger rolls once per shift; brush off licker-in bonnets when laps are laid. Front hands wipe all fronts four times per shift; take down strips twice per shift. Mop hands mop all cards every 24 hrs. Lap rackers brush off licker-in bonnets twice per shift.	Fast parts, each 8 hrs. Slow parts, each 24 hrs.
22	*	25	Tender	Mop & Strips	Mop cards once each shift with waste. Fronts wiped after each stripping.	Fast parts, each 8 hrs. Slow parts, each 24 hrs.
23	*	76	Tender and Cleaner	Air, Strips & Mop	Tender wipes front of cards once per hr. and blows off cards twice per 8 hrs. Cards are mopped once per 24 hrs. by cleaner.	Fast parts, each 8 hrs. Slow parts, weekly.
24	*	28	Tender		Use yarn mop during week and compressed air and yarn mop for week-end cleaning.	*
25	7.4	36	Tender & Stripper	Air, Brushes & Strips	Blow off cards once per day. Balance of cleaning done with brushes and waste. Cleaning is divided between card hand and stripper with card hand doing major portion.	Fast parts, once per shift. Slow parts, twice weekly. Comb boxes, daily.
26	19	23	Tender	Air & Strips	Wipe cards each shift with waste and on week-end cleaning blow off with air and then wipe with waste.	All moving parts, each shift.
27	15	17	Tender	Mop	Tender cleans cards by mopping.	*
28	12.5	41	Tender	Mop & Strips	Mop cards once each 8 hrs. Mop backs twice each shift. Wipe fronts every other doff. Wipe off licker-in bonnet and clean clearer rod each time a lap is laid.	Fast parts, every 8 hrs. Slow parts, twice weekly. Comb boxes checked each shift and oil added as needed.

*Reply did not contain information on this phase of the question.

"The front setters set flats, stripping comb, stripping plate, and draft plate. They also set all brushes on flats and adjust flat chains. One man sets 10 cards per day.

"With crew listed above, our grinding frequency is 210 hours. We grind each card for 7½ hours."

When asked for his preference if he had his choice of the "gang grinding" system or plenty of experienced grinders, this mill man stated that he would prefer that a grinder be responsible for all of his work.

Only one of the 27 mills submitting written answers to this question indicated any experience with this system.

Frequency of Grinding Cards

In discussing grinding intervals for cylinder and doffer fillet and flats, there was great variation in procedure as reported by representatives of six mills. Intervals reported for grinding the cylinder and doffer fillet varied from 144 to 600 hours.

In lieu of reporting here the information presented by so few mills during the open forum, a tabulation of the replies submitted by the 29 mills is published herewith with the thought that an analysis of this table will serve as a more concrete basis for those readers who desire to compare results with practice in their respective plants.

A question asking for discussion on use of the traverse grinder on card flats was presented. Only one member commented, stating that a traverse grinder for flats was recently purchased by his plant but that they did not have sufficient information to render a report at the time of the meeting.

The only mill submitting a written answer to this question replied as follows: "Yes, flats will grind oval-shaped. They should be ground for a period of six hours. The traverse grinder will 'true up' hollow-ground flats."

Effect of Card Wire on Waste

In reply to the question regarding the influence of the count of clothing wire on waste removed in carding, two mills presented results on tests that had been conducted. The concensus was: the finer the wire—the less the number of neps. One mill reported 30% less neps with 130 wire than with 110 wire.

Another mill reported that fewer neps were prevalent with 100 wire than 90 wire; however, that same mill reported more waste with 90 wire than 100. Clothing finally adopted as standard by that mill was: 100 wire for cylinders and flats and 110 for the doffers. This particular mill has reclothed only 11 cards out of a total of 140 that have been in operation since 1916.

Long Draft Drawing

Only one complete report was presented regarding long draft drawing as compared with conventional drawing. This mill had 64 deliveries of long draft drawing which had been in operation about 6 months. It was stated that up until the time of the report they have not obtained the performance expected.

Elaborating on this statement, this mill man stated that they had understood that an efficiency of around 90% at 100 feet per minute could be attained, but that they have been unable to do this even by using additional help.

In addition, it was stated that more waste is made on the long draft drawing due to the fact that laps do not run out together. It was also reported that more maintenance is required. The flat type clearer is preferred by this mill.

An overseer commented as follows: "The trend seems to be toward eliminating all doublings in the carding department. They just give the resultant roving to the spinner and say 'Do the best you can with it'."

Card Grinding Schedules

As Reported by Textile Operating Executives of Georgia

Mill No.	Wt. of Lap Oz./yd.	Wt. of Sliver Gr./yd.	Card Production Lbs./hr.	Grinding Interval—Hours		
				Cylinder	Doffer	Flats
1	14.75	59	16.00	190–200	190–200	190–200
2	14.00	60	14.00	480	480	480
3	15.40	67	16.00	300	300	300
4	14.00	62	**	240	240	240
5	14.00	60	15.50	220	220	220
6	14.50	62	11.00	288	288	600
7	**	**	**	175	175	175
8	14.00	65	**	336	336	336
9*	14.00	61	19.00	147	147	147
10	16.00	60	20.00	200	200	200
11	13.50	54	**	234	234	234
12*	**	**	**	312	648	648
13	14.00	63	14.50	190	190	190
14	13.70	46	11.50	220	440	220
15*	15.00	52	12.00	212	**	212
16	14.50	50	14.00	360	360	360
17	14.00	57	**	312	312	312
18	15.00	65	17.00	200	200	200
19	13.50	50–60	**	200	200	200
20	14.00	55	12.50	***	***	720
21*	15.30	48	12.00	210	210	210
22	14.00	55	14.00	400	400	400
23	14.00	57	**	151	302	600
24	15.00	62	**	**	**	**
25	15.75	48	7.40	216	216	216
26	16.32	66	19.00	144	144	288
27	**	**	**	80	216	216
28	14.00	58	12.50	276	276	728
29	14.00	62	13.85	200	200	200

*Cards equipped with continuous stripper.

**This phase of question was not answered.

***Cards equipped with metallic clothing.

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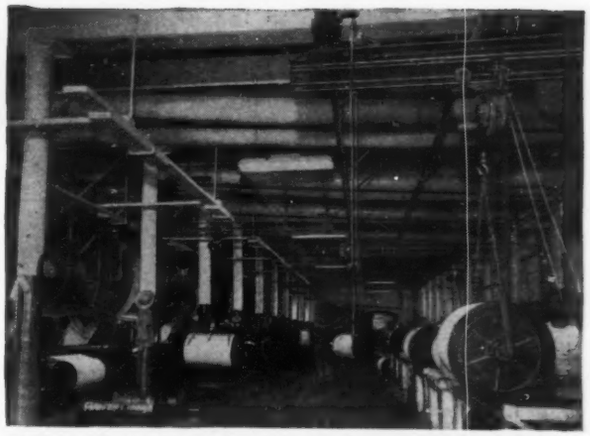

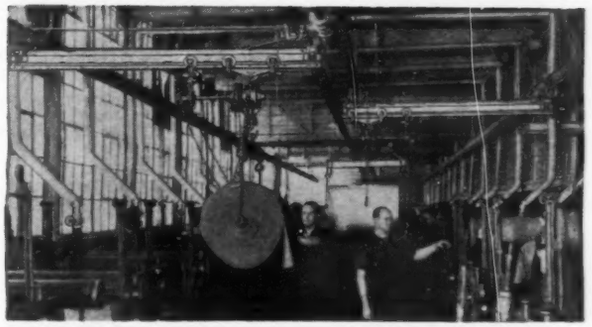

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One favorable report was received through the mail. This mill uses long draft drawing on rayon, reporting that they were able to eliminate one process of drawing with no ill effects. They also had less static trouble. The revolving clearer was used satisfactorily.

The balance of the mills answering by mail reported no experience with this equipment.

Pneumatic Bolster Cleaner and Roll Scrubber

Experience of the group was limited with regard to the pneumatic bolster cleaner and roll scrubber for fly frames. One mill man reported that a pneumatic roll scrubber is being successfully used in his plant. It was explained that this machine consists of an air driven motor and a small wire brush.

A superintendent of another mill stated that both the pneumatic bolster cleaner and roll scrubber are being used in his plant with very satisfactory results. Both machines are pneumatically operated and require no special arrangement since the ordinary compressed air blow-off line may be used as a source of power. The wire on the roll cleaner is fine in texture and does not scratch the rolls, according to the overseer of carding at this same plant.

Especial interest in these two devices was displayed by those present.

Training Frame Tenders

There was considerable discussion on the subject of the most effective system for training frame tenders where the job consists of creeling, doffing, tending and cleaning the frames. Several methods of training were presented with the result that there was considerable difference of opinion as to the time required for the operative to become proficient.

Mill No. 1: We recommend placing all learners under a capable instructor and having them instructed [as shown in the accompanying schedule].

The learner should then be permitted to operate a frame with the help of an instructor until he is able to maintain production. We find that from 60 to 90 days is usually required for learners to qualify under this system.

Training Frame Tenders

First Day

1. Start and stop frame.
2. Twist off pieces.
3. Pick top cleaners.
4. Prepare frame to doff.
5. Piece through break-backs.
6. Kink ends.
7. Doff frame.
8. Stack roving in box.
9. Wraps ends.
10. Complete front line and start up.

Second Day

1. Review and practice first day operations.
2. Start getting up ends.
3. Clean fronts, backs and belt heads.
4. Pick spindles.

Third Day

1. Practice first and second day's operations.
2. Creel top and bottom line.
3. Clean bobbin gear.

Fourth Day

1. Practice first three days' operations.
2. Pick bottom clearers.
3. Oil bobbin gear.
4. Oil top spindles.
5. Remove laps from rollers.
6. Wipe roller beams.

Fifth Day

1. Practice first four days' operations.

Mill No. 2: A learner is placed with an experienced operative for at least 100 hours initially. We find that from 600 to 1000 hours of practice are required for the learner to become proficient. The length of time, of course, depends on the ability of the individual to absorb instruction.

Mill No. 3: We place our learners under the supervision of an instructor. We allot a definite number of frames to the instructor for this work. After initial instruction is completed, the learner is given a frame to operate and the work load increased as proficiency is attained.

Mill No. 4: We select our frame tender learners from the most promising prospects of the drawing tenders. We place the learner with an experienced tender, who is not responsible for an assignment, and teach him the following: doffing, how to put up ends, how to kink ends, and how to adjust tension. During this time he is also learning the cleaning schedule and how to clean, plus learning how to creel. Creeling usually comes easily, as the learner has previously learned to splice ends while tending drawing. We have a training period of six weeks.

Mill No. 5: We also use the incentive system by promoting drawing frame or card tenders. Learners seem to function better and have a keen interest in their work since they feel that they are advancing and in addition they receive an increase in pay because the wage scale is higher on the frame tending job.

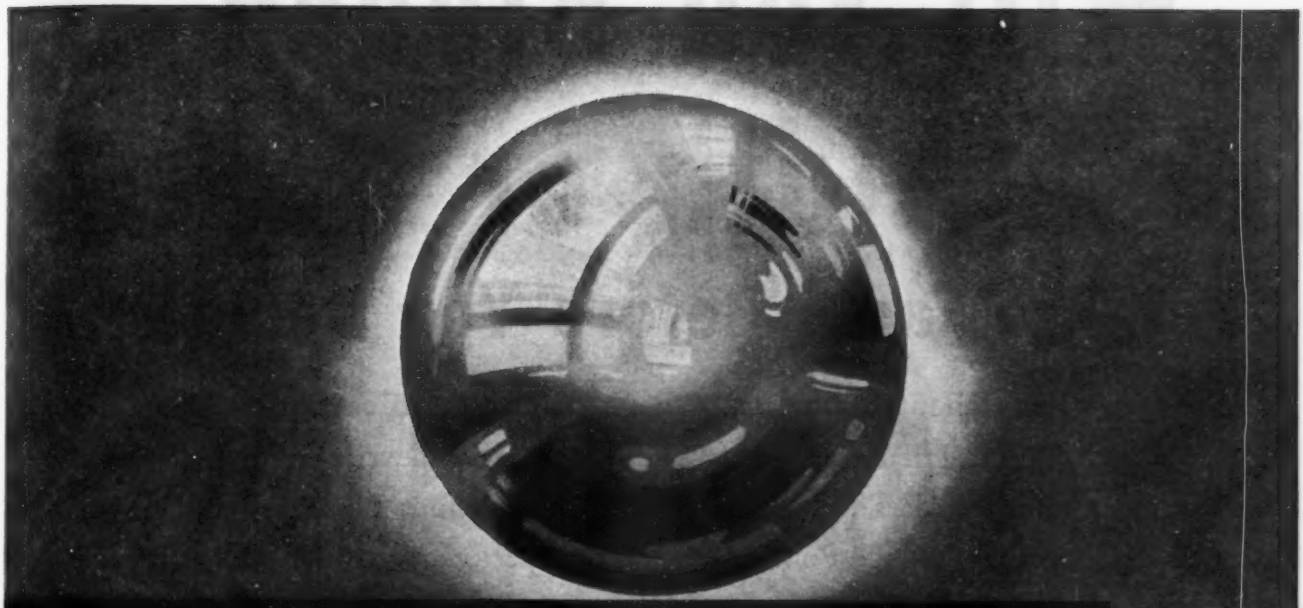
Mill No. 6: Our experience has been that people at least 25-30 years of age are the best prospects for learning to run frames. Most younger people do not have the patience to learn to run a machine where the operative sets the pace, which is the case with frame operation. We find that it takes around 600 hours for an operative to learn to run a full job.

Compressing Sliver in Cans

An interesting question to all was that requesting the best method for increasing the weight of sliver put into cans. Considerable difference of opinion was evident.

One mill man recommended the use of compression springs at the cards, stating that they had been able to increase can capacity approximately 11%. He further related that they did not have success with increasing the amount of sliver in drawing cans.

Increasing the ratio between the turntable and coiler was the method suggested by another mill. They increased the ratio from 28 : 1 to 36 : 1. This allows coils of sliver to lie closer together. The representative of this mill stated that they use adjusting screws on idler calender rolls in card coilers to apply pressure to sliver. However, he cautioned against too much pressure at this point since it will cause excessive wear of gears and



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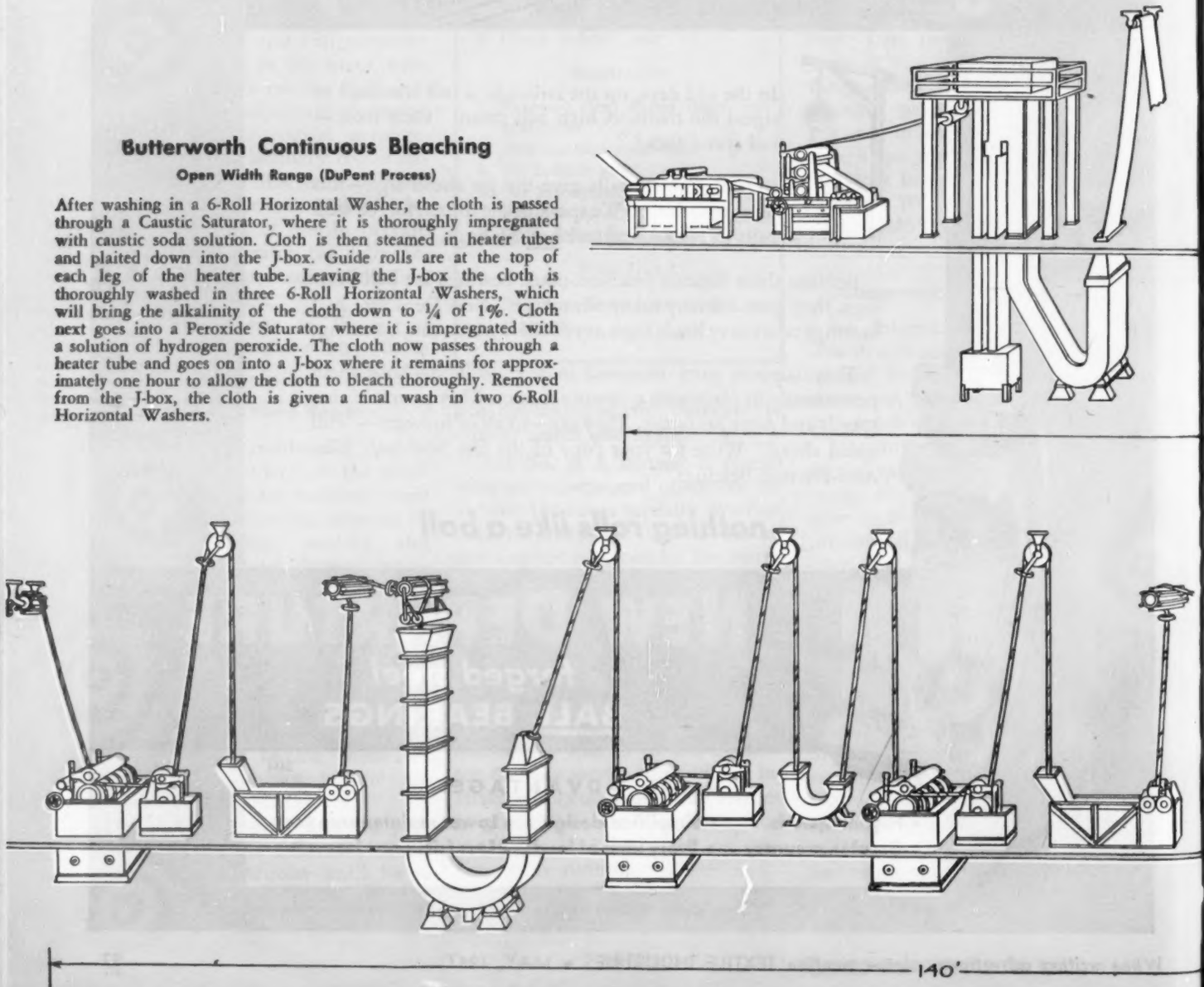
Open Width Range (DuPont Process)

After washing in a 6-Roll Horizontal Washer, the cloth is passed through a Caustic Saturator, where it is thoroughly impregnated with caustic soda solution. Cloth is then steamed in heater tubes and plaited down into the J-box. Guide rolls are at the top of each leg of the heater tube. Leaving the J-box the cloth is thoroughly washed in three 6-Roll Horizontal Washers, which will bring the alkalinity of the cloth down to ¼ of 1%. Cloth next goes into a Peroxide Saturator where it is impregnated with a solution of hydrogen peroxide. The cloth now passes through a heater tube and goes on into a J-box where it remains for approximately one hour to allow the cloth to bleach thoroughly. Removed from the J-box, the cloth is given a final wash in two 6-Roll Horizontal Washers.



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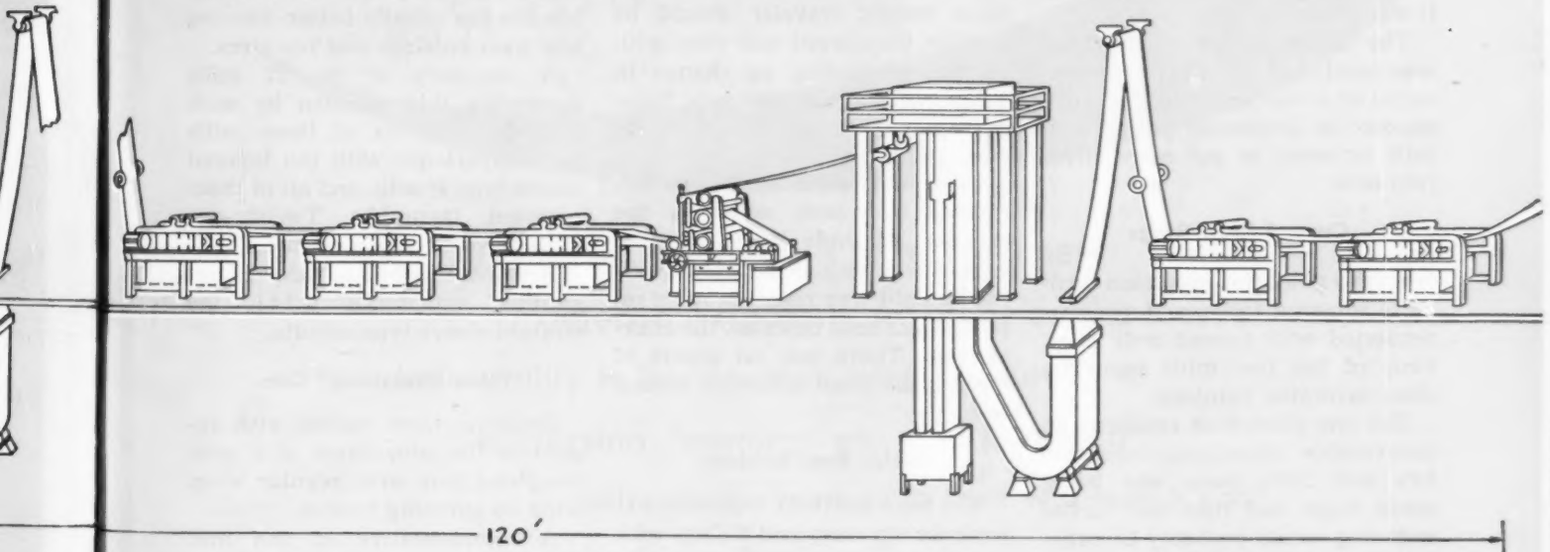
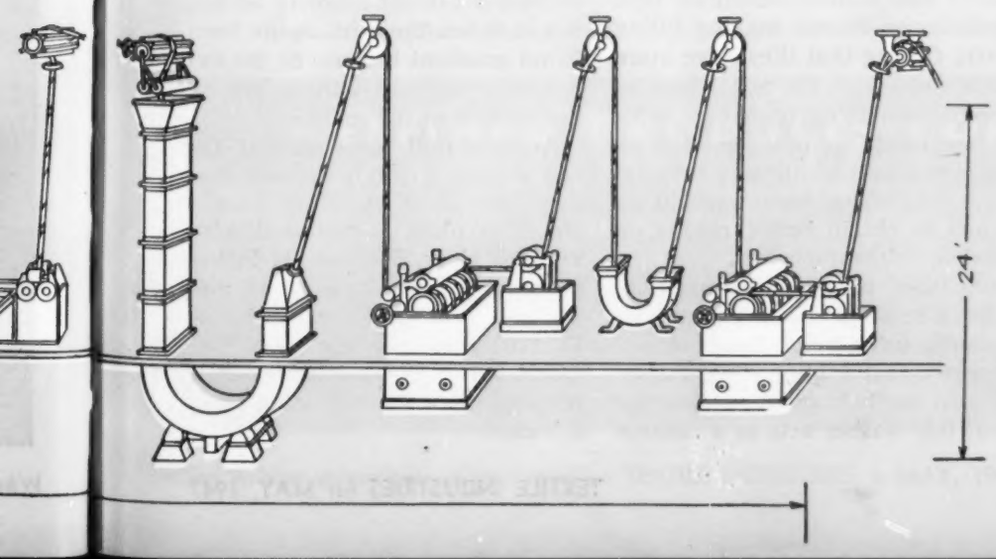




Butterworth Continuous Bleaching

Rope Range (Becco Process)

Cloth is washed in a Tight Rope Washer and given maximum extraction in a pneumatic Squeezer before going into the Caustic Saturator. Here the cloth is impregnated with caustic soda solution. At the delivery end of the machine, two horizontal squeeze rolls with pneumatic pressure device and recording instrument permit full knowledge of the pressure being applied. Cloth next goes through a Plaitor where a traveling pot-eye distributes the rope from front to back as well as across the width of the J-box. Steaming compartments in the third and fifth sections of the "J" and a small steaming unit in the bottom of the "J" are used according to the amount of goods in the J-box. Leaving the J-box the cloth is washed in a Tight Rope Washer, passed through a micro-set Squeezer and timing Scray, a small J-box for holding approximately 25 yards of goods. It then passes through another Tight Rope Washer and a pneumatic Squeezer where the desired extraction is achieved. This is followed by the application of hydrogen peroxide in a Peroxide Saturator. Goods are then fed through a Plaitor into a J-box; taken through a Tight Rope Washer and micro-set Squeezer, thence into a Scray, and then another wash in a Tight Rope Washer and delivered through a micro-set Squeezer into the

cause trouble in drafting at breaker drawing. A 61 grain card sliver is produced at this plant, 13½ lbs. per can; 73 grain breaker drawing sliver, 12.87 lbs. per can, non-compressed; 69 grain sliver at finisher drawing, 14.87 lbs. per can, non-compressed. One finisher drawing frame at this plant was reported to be equipped with tongue-and-groove type pressure calender rolls. By using an 8-lb. weight, they are able to put 18 lbs. of sliver in each can on this frame, according to the mill spokesman.

A third mill reported that the best method they have found is by using tongue-and-groove calender rolls on both cards and drawing frames. With this type roll, an increase of 4 lbs. per can was reported at the card. High compression calender rolls on drawing have enabled them to increase the weight of sliver per can by 30%, it was stated.

The discussion of this subject was concluded when the representative of a mill reported that he is opposed to increasing pressure on rolls in order to put more sliver into cans.

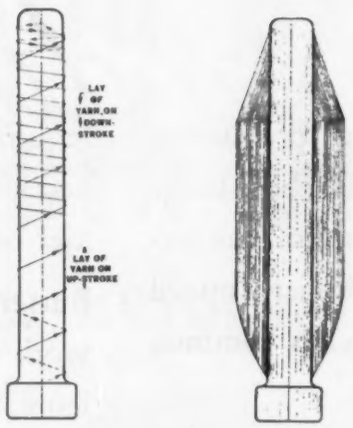
Curved Web Rings

At this point the discussion turned to spinning and experience was requested with curved web rings. Four of the five mills reporting cited favorable opinions.

The one plant that rendered an unfavorable report explained that 80's and 100's yarn was being made there and that the curved web ring would probably be satisfactory on coarser work.

An analysis of the written answers received indicates that, generally speaking, experience with the curved web ring has been satisfactory. In response to that part of the question regarding life of the ring, seven of the nine mills that felt that they had sufficient experience to answer this indicated that the curved web ring has longer life; two mills stated that their experience showed shorter life than the straight web ring.

The question concerning the comparison of traveler life brought replies from 12 mills that they had noticed no difference in traveler life. Three mills stated that they had found that traveler life on the curved web ring was longer while no mill reported shorter traveler life.



Courtesy, Saco-Lowell Shops.

Diagram at left shows how the yarn is laid on the bobbin with a non-sloughing cam. Right, wind produced by a non-sloughing cam.

It was the consensus that the same weight traveler should be used on the curved web ring, with 13 mills reporting no change in weight of traveler and only three mills reporting use of a different traveler.

Eight mills reported that no difference had been noted in the number of ends down on the curved web ring as compared with the straight web ring. Six mills reported less ends down on the curved web. There was no report of more ends down with the curved web.

Metal Base Bobbins

The next question requested experience (on warp and filling) with running metal base bobbins on clutch type spindles. Representatives of five mills commented on this question. Four were using metal base bobbins on clutch type spindles on frames making filling yarn, finding that they have more ends down with the metal base as compared with the plain base, with a resultant increase in doffing time. One mill is changing to metal base bobbins on warp yarn in an effort to obtain better results on Barber-Colman spoolers.

Another mill which manufactures all filling yarn on clutch type spindles using metal base bobbins reported that a thin leather washer is used on their spindles, claiming that this washer acts as a cushion and prevents cutting down ends while doffing.

A summary of the answers received by mail indicates that all mills having experience with metal base bobbins reported more ends down, but they felt that this was offset by the fact that the number of soft packages was reduced.

Sleeve Type Spindles

Advantages of the sleeve type spindle (tapered) were enumerated by representatives of four mills. Mill No. 1 claimed less vibration and less tension on traveler. Mill No. 2 also reported less vibration and added that they had experienced less ends down per thousand spindles. Fewer ends down was also an advantage claimed by Mill No. 3 adding that they have found less traveler wear with this type of spindle. Mill No. 4 found that the plastic bottom bobbin fits the spindle better, causing less wear on rings and travelers.

A summary of the 27 mills answering this question by mail indicates that six of these mills have experience with the tapered sleeve type spindle and all of them reported favorably. Twenty-one mills reported no experience.

A response was not received regarding experience with the straight sleeve type spindle.

"Non-Sloughing" Cam

Opinions were varied with regard to the advantages of a non-sloughing cam over regular warp wind on spinning frames.

A representative of one mill stated that numerous experiments with the non-sloughing cam have been conducted at his plant in an attempt to run combination wind on Barber-Colman spoolers. So far, it was stated, the cam has not been found practical because of the excessive amount of tailings left on the bobbins at the spooler.

Another mill reported that the non-sloughing cam is the best that they have found to reduce sloughing. This plant is equipped with 2½-inch rings, bobbins 1⅛ inches diameter and 9¼ inches long, and traverse 8 inches. Yarn number is 13, 1100 yards per minute on B-C spoolers, 12% throw-outs. Speed of traverse was increased when using this cam.

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A third mill man stated, "We have installed 10 non-sloughing cams. We get the same amount of yarn on the bobbin as before. We have less waste and approximately 1/3 less throw-outs." This plant is equipped with 2-inch rings; bobbins ⅞-inch diameter and 8 inches long; traverse 7 inches. Throw-outs 15-17%, 20s, 25s, and 30s warp yarn, combination building; 1250 yards per minute on B-C spoolers. Traverse was not speeded up with this type cam.

Automatic Roll Pickers

Information was presented in the open forum regarding the question on how many rolls are cleaned each day with the pneumatic or other mechanical roll pickers. No two mills reported the same number of rolls picked or the same procedure.

All comments on this device were favorable. One mill superintendent reported that, since automatic roll pickers were adopted at his plant, unsightly callouses have disappeared from the hands of the operatives. In his opinion, this factor alone has justified the purchase of this equipment since the morale of their employees has been considerably improved. An overseer ventured to say that he believes that if the use of automatic roll pickers at his plant were discontinued, all of their spinners would walk out and stop work immediately.

To indicate the degree of variation of procedure at the various mills, following are extracts from their reports:

Mill No. 1: We use the pneumatic roll picker on all yarn numbers from 3s to 28s. The spinners pick their own rolls.

Mill No. 2: Our yarn numbers are from 8s to 12s. One operator can clean about 16 frames in 8 hours. The roll picker cleans steel rolls, tension weights, and stands. Spinners pick top rolls.

Mill No. 3: We use the mechanical roll picker to clean bottom rolls and around long draft assemblies and get 14 to 16 frames per day. Counts run from 6s to 20s. Other cleaning is done by hand by regular cleaners.

Mill No. 4: We have been using a pneumatic roll picker for about six months and, so far, are quite pleased with it. Our average yarn number is approximately 8.60. The majority of our frames have 216 spindles. One hand using this device averages 18 frames in 8 hours.

Lubricating Twister Rings

Turning to a discussion of twisting problems, information was requested as to the type of grease-lubricated twister ring preferred and the best method of lubricating twister rings where high spindle speeds prevail.

Courtesy, M-B Products

Shown here is a pneumatic roll picker being used to clean rolls on a fly frame. Note lint on spindle.

One mill reported a preference for the groove type ring, claiming that it runs cooler, gives less traveler lag and longer traveler life. Traveler wear on this type of ring was reported to be reduced 50%. When asked about the grease used, the representative of this mill stated that it was a clear grease, 220 penetration, 128° F. melting point. Grease is applied after each doff, or every 45 minutes, with the index finger.

A second mill prefers wick type rings but finds it necessary to run spindles slower with this type ring.

An interesting report was made by a representative of one large mill. He stated that twister ring grease has been entirely replaced by oil in his plant for the lubrication of twister rings. It was claimed that with an oil, the machines are easier to keep clean, cleaning costs have been reduced, and there is less soiled yarn. The oil is applied by wiping the ring all the way around with the finger. A premium grade turbine oil is being used.

Driving Twister Spindles

Experience was next requested regarding the better method of driving forming and cable twister spindles—the metal cylinder or the individual pulley drive. No conclusive information was available on this subject at the open forum.

An analysis of the answers received as a result of the questionnaire indicates that metal cylinder method is preferred since maintenance of the shafts and bearings is a large item on the individual pulley drive.

Method of Paying Spooler Tenders

Details were presented by several mills regarding systems for paying B-C spooler tenders by the piece (instead of by the cheese or box).

One system described consisted of having a yarn weigher take a full trident as soon as it is released by the operator and weigh it. He then deducts the tare weight of the trident and records the gross, which is the sleeve, starter and wound yarn. He records the weights on a standard register near the scales, making 3 copies. One of the copies is given to the operator, one copy goes with the box of yarn, and the original copy goes to the payroll office. For each 100 lbs. gross reported the operator is paid for 77.58 lbs. net yarn spooled, the necessary allowance being made for the tare weight of B-C sleeve and starter yarn.

Reducing "Wild Yarn"

The best method of reducing wild yarn on spoolers and warpers was the final subject discussed.

Time permitted only one mill executive to express his views on this subject. It was his opinion that this problem can be conquered with proper supervision, training of operatives, and cleanliness.

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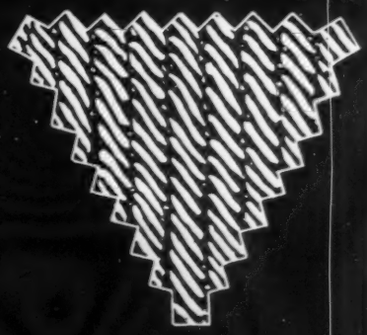

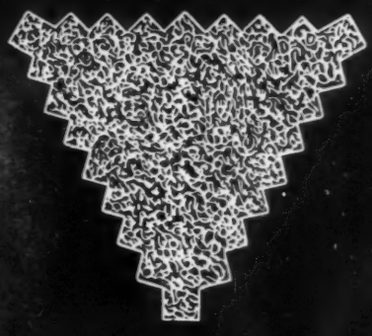

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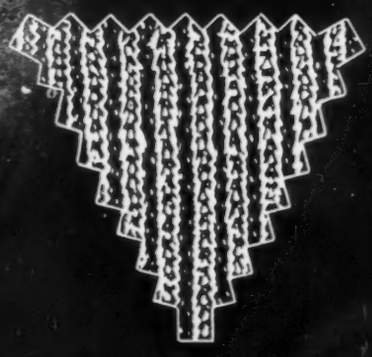

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Caustic Soda

Liquid Chlorine

Potassium Carbonate

Soda Ash

Sodium Nitrite

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Cotton Warp Sizing

By PAUL V. SEYDEL, D. Sc.

Penetrants—Anti-Foaming Agents—Tints for Identification—Starch Thinners—Starch Film Modifiers

Article 8*

THE MATERIALS discussed so far for use in sizes are those that may be considered essential for sizing mixes. We will now consider the various types that, while not actually essential, may be used to improve the size or to produce certain desired results.

Among these are penetrants, anti-foaming agents, tints and dyes, chemicals for thinning starch pastes, and chemicals for improving the properties of the starch film formed.

Quite often the materials used in other classifications also contribute to these effects, making themselves doubly useful. Such items should be particularly considered in devising a well-balanced size.

Penetrants. A great deal has been written about penetrants in general in the past decade, and it is not within the scope of this article to go into the individual compounds. Penetrants have several uses in a sizing mixture, the least of which is to cause penetration of the size mix itself into the cotton yarn.

There are two reasons for this. First, it has been shown many times that the wetting of raw cotton at the temperatures normally used for slashing is so rapid that the slight additional effect given by a penetrant would be negligible. This may be easily shown by dropping a small hank of raw yarn onto the surface of boiling water. It will wet out in a few seconds, while at room temperature the yarn will float on top for days.

Factors Governing Penetration

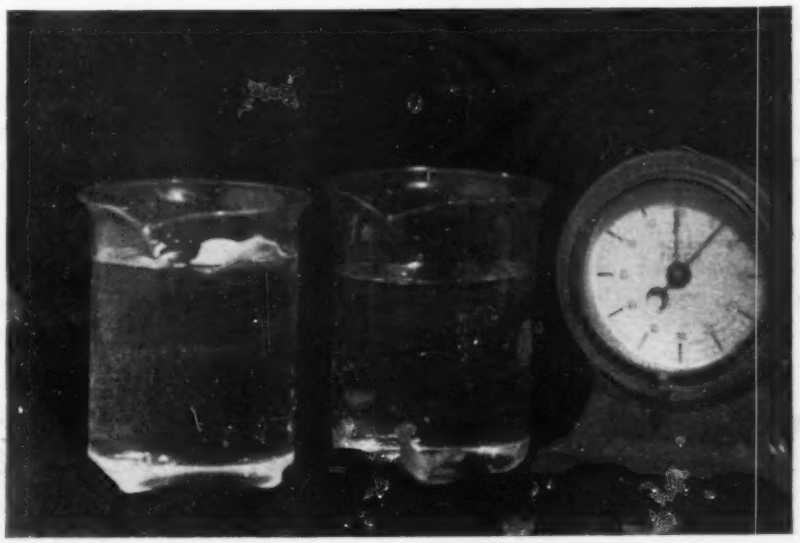
The actual amount of penetration of the yarn by size mixes can be increased to a much greater extent by cutting down on the viscosity of the mix, using thin-boiling starches, than it can by adding a penetrant. It is the viscosity of the size mix and the weight of the squeeze rolls that have the greatest effect on penetration of size into the yarn.

The temperature of the size mix also has a very great effect on wetting of raw cotton. A temperature drop from 208° F. to 190° F. will give a very large difference in wetting time (see Farrow and Neale, Jour. Textile Inst., Vol. 16, p T209). For this reason, the temperature in the size box must be kept as constant as possible to give uniform sizing. (In addition to the wetting effect, the temperature influences the viscosity, which also affects the penetration—just one more reason to keep a careful check on the temperatures.)

Penetration Can be Undesirable

The second reason is that, even if it did improve the penetration, in ninety-nine cases out of a hundred this would be undesirable. The only good reason for penetration of the size is to anchor it well to the yarn, so that it will not shed

A method frequently used to test penetrants is the measurement of the sinking time of a patch of cloth. Shown here are two beakers, one containing plain water (left) and the other with "wet" water or water with a penetrant added. Note that the patch of cloth in the beaker containing the wet water has already sunk while the one on the plain water is still floating.



*The first of this series of articles appeared in the August 1946 issue of TEXTILE INDUSTRIES, formerly "Cotton." For the information of our readers, material presented in preceding articles is outlined below together with listing of issues in which each article appeared.

Article 1 (August 1946). Description of the ideal size; importance of sizing.

Article 2 (September). Physical and chemical properties of cotton.

Article 3 (November). Materials used for sizing; starch and its action.

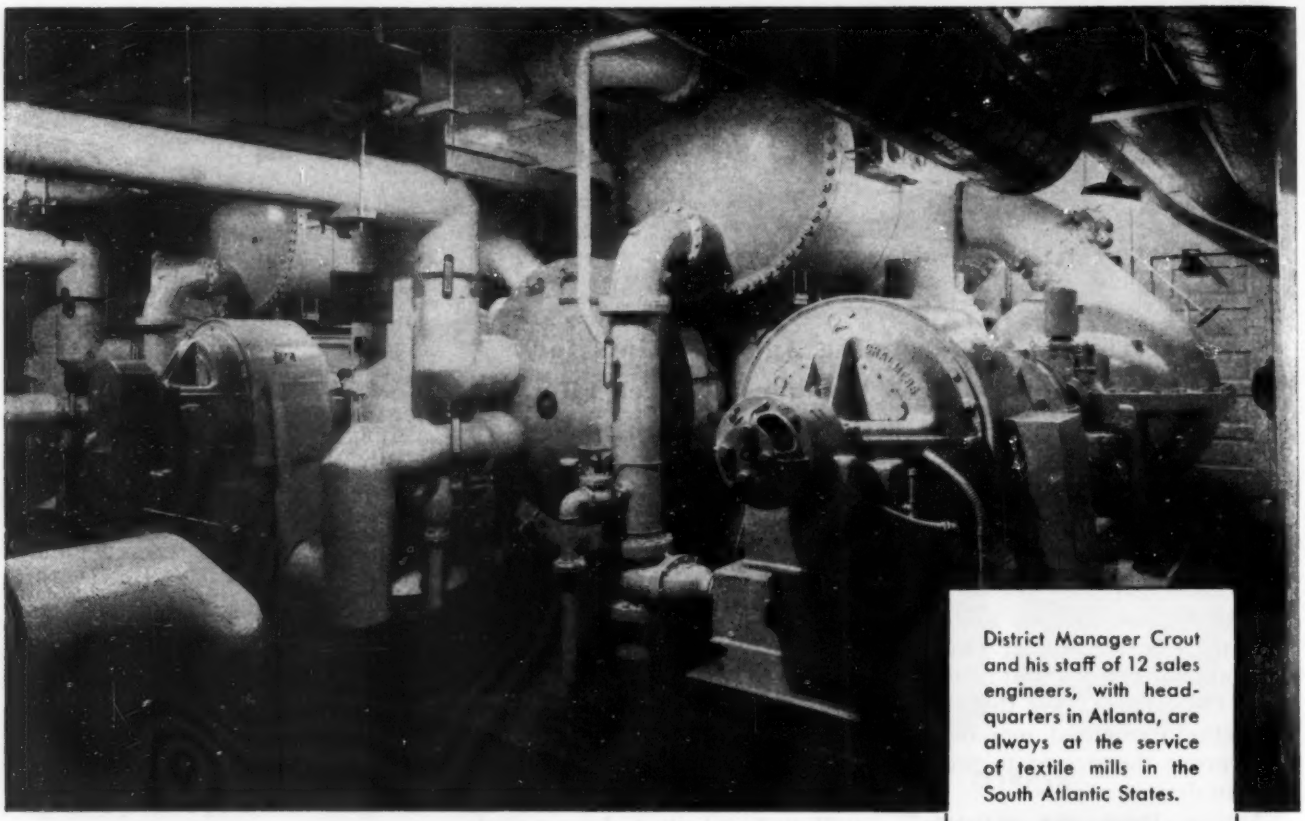
Article 4 (December). Description of natural and chemically prepared binders.

Article 5 (January 1947). Lubricants and softeners.

Article 6 (March). Deliquescents, antiseptics and weighting agents.

Article 7 (April). The influence of water on sizing.

Reprints of these articles are not available at this time. It is contemplated that these articles will be reprinted in book form upon completion of the series.



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in the weave room. For this very little penetration is required.

The size film should form a flexible tube around the yarn, very much like the pneumatic tire of an automobile. In this way the film, like the tire, is more pliable and will withstand the strains and shocks much better than a solidly sized yarn would. A solidly sized yarn would be much too stiff, and too brittle as well.

Penetrants are useful to a certain extent to increase the ability of the size film to take up moisture when it is exposed to higher humidities, so that in the weave room it can assume standard conditions more rapidly. Much must not be expected from this, however, as the effect is not very great. It is much more essential to be certain that the yarn is not dried too much.

More valuable is the effect of penetrants as rewetting agents for cloth that is to be Sanforized. The penetrant used should be effective in less than one-half of one per cent of the size mix. An excessive amount of penetrant may cause shedding and may also emulsify the lubricants in the size to the point of decreasing their lubricating efficiency. These are two dangers in the use of penetrants that should be particularly looked out for.

Penetrants or wetting agents in use are principally sulfonic acids or their salts. The molecule is so constructed that one end (the hydrophilic end) is strongly attracted to water, and the other (the hydrophobic end) is repelled by water or attracted by fats. Thus they draw the water and the fats on the cotton together, wetting the cotton.

Soaps are also penetrants, though not as powerful as the synthetic penetrants. Literally hundreds of compounds have been patented for use as wetting agents, mostly in the class known as anion-active agents. Theoretically, cation-active agents could be used for penetrants, but as yet most that have been developed, while effective softeners and dispersants, are not as good as the sulfonic acid family.

Some non-ionic wetting agents have also been put on the market.

Drave's method for testing penetrants. It measures the time required for a standard skein to sink in a solution of wetting agent when the skein carrying a standard weight is held below the surface of the wetting solution by an anchor. Note that skein in cylinder at left has started to sink.

They have the advantage of being compatible with many more materials than are the ionic types. Some anion-active agents, particularly the soaps, are precipitated by hard water or salts.

Anti-Foaming Agents are of many types, dependent on the source of the foam. Foam is generally due to the type of water used, as the majority of mills do not have bad foaming conditions in the size box. A certain amount of foam is a good sign, indicating that the size has good colloidal properties, and will probably form a good flexible film. Excess of emulsifying agents, penetrants, and sulfonated softeners will generally contribute to foaming. Soap is a particularly bad actor. If the foam is due to presence of improper size materials, it is then a bad sign, usually an indication that there is too much softener for an elastic film. This is, however, rather rare.

Foaming is generally a chronic condition of a mill. Where the water supply is from a small branch, or any other variable source, the foaming condition may appear and disappear from time to time, as the water varies.

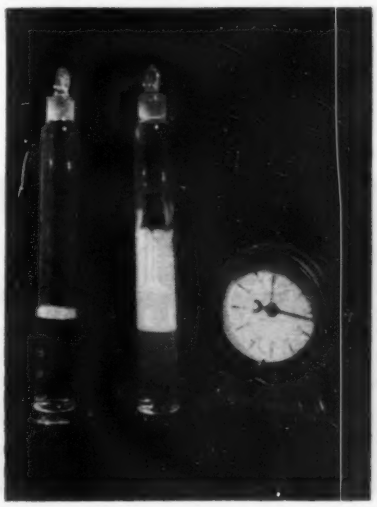
Very pure water has a stronger tendency to foam than hard water. Where this is the trouble, addition of minute amounts of calcium soaps to the size will remedy the condition. This is a very touchy operation, however, and the soaps must be thoroughly dispersed in the size or two things will happen: first, the foam will not be affected; and second, the lime soap will deposit on the yarns and be very difficult to remove.

Salts, such as the chlorides, the fluorides, and sodium sulfate, will quite often be effective where very pure water is the cause of the foam. Care must be exercised here that the salt used is compatible with the size mix and that sufficient quantities are not used to affect the starch film adversely.

Avoid Excess Use of Acids

Often the cause of foam is a high pH of the water. Decreasing this alkalinity by addition of acids, such as acetic acid (vinegar) will stop this type of foam. Excess of acids is definitely to be avoided, as they will cause rapid deterioration of the slasher blankets, rapid wear of the copper equipment, and rusting of loom parts, particularly the heddles and reed. Where this method for decreasing foam is used, one may watch for excess of acid by noting increased shininess of the copper drying cylinders. (This is only an indication, and should not be completely relied on, as other causes may contribute to dull the cylinders.)

Showing testing of penetrants for persistence of foam.



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In the foregoing cases, and in other cases where the source of the trouble cannot be determined, foaming may often be stopped by use of oils, such as kerosene. In reasonable amounts, these oils are safe to use as long as the size mix is heavy enough to emulsify them. They should be definitely avoided in light mixes, as they may not be emulsified sufficiently to prevent their floating on top, causing spots on the warp.

A large number of the commercial anti-foaming agents are either hydrocarbon oils or higher alcohols, such as octyl alcohol, which are intended to float on top of solutions and thus break up the foam. For this reason, most of them are ineffective in size mixes, since the heavy starch pastes will emulsify the oils.

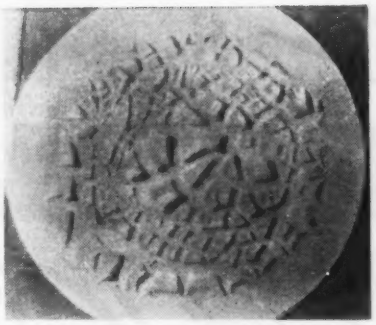
In any event, something should be done about bad foaming conditions. Not only is size lost by foaming over on the floor and messing up the room, but it is difficult to determine and keep the proper level in the size box. It is obvious that if the yarn simply runs through the foam, sufficient size will not be applied.

The experience and theoretical knowledge of a size specialist should be relied on to correct foaming troubles. Not only have they seen such conditions in many mills, but they also know how to correct the condition without going so far as to cause other difficulties.

Tints and Dyes. Colors may be added to the size bath for the purpose of identifying certain yarns intended for certain constructions. Dyes should not be used ordinarily, as the penetration and time of treatment in sizing is not sufficiently long to give uniform results for permanent effects. The colors should be water-soluble tints that will be removed with the size during the finishing processes.

Two Size Boxes

Where beams of similar but different yarns are slashed together, two size boxes may be used in tandem, with one set of beams going through a normal size mix and the other through a tinted mix. They are brought together over the drying cylinders and are



Test film of boiled corn starch paste poured on filter paper. Note lack of continuity which is the result of adding too much tallow to corn starch paste.

leased and beamed normally. The tinted yarn should strike the cylinder a few feet before the untinted so that it will partially dry before contact is established, thus preventing bleeding.

This is often done for constructions mixing cotton and spun rayon, or regular and reverse twists. Only a slight tint is necessary to enable the drawing-in operators and the weavers to differentiate between the two yarns.

Blue tints may be added to whiter yarns which are not intended for later bleaching or dyeing.

Starch - Thinning Chemicals. These chemicals fall principally into three classes: acids, enzymes, and oxidizing agents.

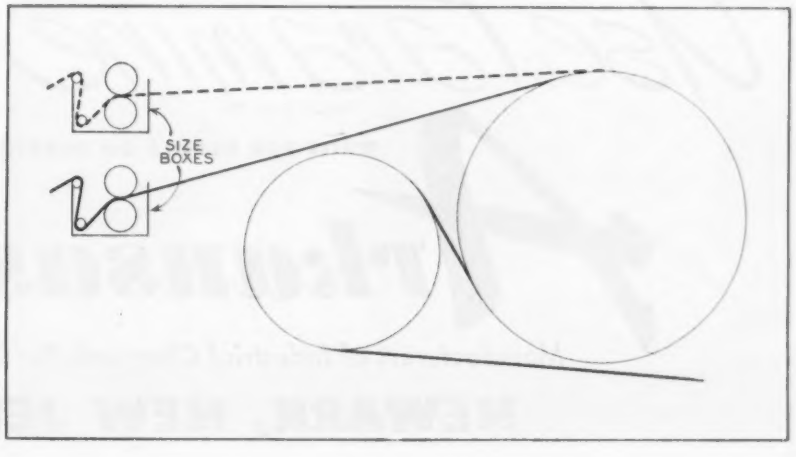
Although thin-boiling starch is available from all the large starch manufacturers, many mills prefer to thin their own starches. The principal advantage of thin-boiling starch, as pointed out in the section on starches, is to enable the sizer to add more size to the yarn. This does not always result in a better weaving yarn, as modified starches give weaker films than normal starches. The extra amount of size nullifies this effect to a certain extent.

Theoretically, there should be no reason why the mill cannot produce as good a thin-boiling starch as the manufacturer. But practically, there is a very good reason: lack of uniformity. The starch manufacturers not only have specialized apparatus, but they have experienced scientists and technicians to control the process. And further, they have all the necessary blending equipment and testing facilities to assure a uniform product.

The use of acid thinners, in my opinion, should be definitely avoided in the mill. This method requires very careful time and temperature controls, and the action must be stopped just at the right point by neutralization. And neutralization must be exact, for an excess of alkali will have a definite effect on the properties of the starch paste and film.

Enzymes will produce more readily controllable viscosities. However, the action of enzymes is also very closely dependent on the temperature. Very little action is obtained in cold solutions, and if the solution is heated too much, the enzyme is killed (this is the method for stopping the action of the enzyme after the desired result is obtained).

"Where beams of similar but different yarns are slashed together, two size boxes may be used in tandem, with one set of beams going through a normal size mix and the other through a tinted mix."



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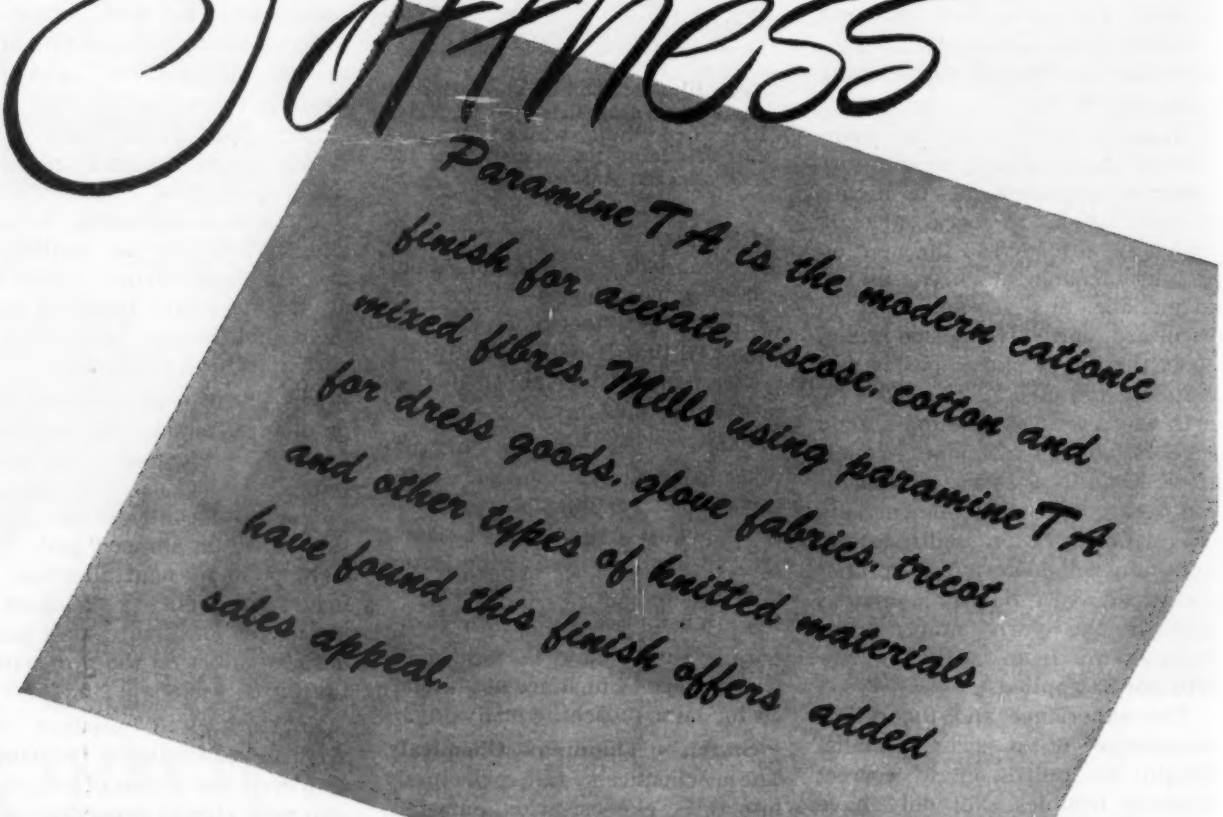
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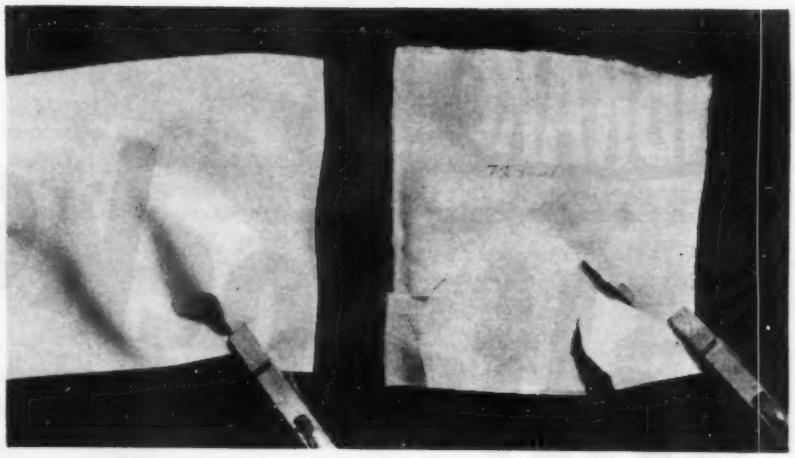
The storage stability of enzymes is not too good. This is one reason for the variation in effect that is often noted in using enzymes. In addition, many of the ingredients used in sizes are not compatible with the enzymes, and some of the very best sizing ingredients may completely destroy the effect of the enzymes. For this reason, whenever enzyme thinners are used, the size ingredients should be added to the starch after bringing to a boil.

The chloramines are more nearly uniform in their effect. They depend on an oxidizing action of labile chlorine released from the molecule by moisture and heat. Only a certain amount of chlorine is present, and after this has done its work, the action ceases. The chloramines are more compatible with the usual size ingredients, and ordinarily it does not make any difference whether the size is added before or after cooking. The chloramines are still dependent to a certain extent on temperature control and rate of heating, as well as time of cooking. And to produce uniform results, they must be accurately weighed. They should be stored away from moisture and heat, as their storage stability is not too good. The most common is the well-known Chloramine T, the sodium salt of paratoluenesulfonchloramide.

Other oxidizing agents, such as sodium and calcium hypochlorite, perborates, percarbonates, peroxides, persulfates, and perphosphates may also be used but are more difficult to control in general. The hypochlorites, particularly, should be avoided if uniform results are desired.

Starch Film Modifiers. Acids, alkalies, and a number of salts have the ability to modify the properties of starch pastes and films. By means of these, starch pastes may be made more or less adhesive, the clarity of such pastes as corn starch may be improved to imitate that of potato, and a stronger, more flexible and elastic film may be produced. (There are certain materials which have detrimental effects, weakening the film, such as soaps, but these will not be considered as part of this class).

Very little work done on the effect of chemicals on starch films has been published. In contrast to the use of chemicals to modify adhesives, such as the glues for postage stamps, this field is comparatively new, and much of the work is still included in the category of carefully guarded secret industrial information.



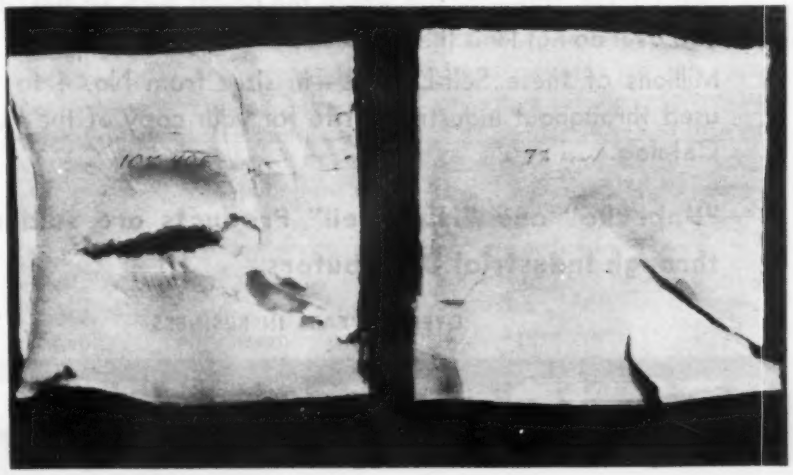
Left, test film of corn starch cooked with calcium chloride; it is continuous and highly flexible. Right, a test film of corn starch with no additive; it is also continuous but brittle.

One of the first patents on this sort of treatment was a French patent of 1874 to Gerard, who used caustic soda to produce a "vegetable glue" called by him "apparatine."Caustic soda and caustic potash have the property of forming a very adhesive paste with starch solution, either cold or cooked. If these pastes are heated too much while still alkaline, the starch will caramelize, turning brown. For sizing use, they should be practically neutralized with acids, such as sulfuric, acetic, or hydrochloric. Excess acid will destroy much of the viscosity of the paste, as well as being detrimental to machinery and to cotton. Potato starch paste treated with caustic soda will keep its viscosity for days, instead of losing it in an hour or two as the pure paste does.

Borax has a unique effect on starch, stiffening the paste and producing a paste which is very adhesive to itself but will not adhere well to other materials. With the proper amounts, a paste can be produced that will not feel wet but may be rubbed into a gummy ball in the hands.

Calcium, magnesium, and zinc chlorides produce the familiar

The specimen at the right is the same as that pictured above on the right. On the left is a film formed from a paste of thin-boiling corn starch; it shows greater tendencies toward brittleness and is not as continuous as normal pearl starch.



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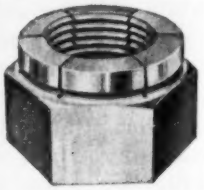

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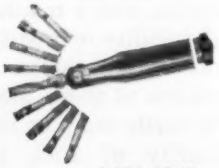

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"chloride gums," when mixed in the proper proportions with starch pastes, either cold or hot. The properties of these gums may be varied within very wide limits by variation of the proportions of chlorides and changing the temperature treatment. These pastes make excellent flexible and elastic films and are much more transparent than ordinary starch pastes.

Ammonium thiocyanate will gelatinize starch without the necessity of heating. Fairly strong solutions are required. Other salts that have been used for modification of starch pastes are: sodium salicylate, trisodium phosphate, sodium aluminate and lead acetate.

Commercially Obtainable Size Compounds. Before we close the discussion of materials for sizing, it seems expedient to say a few words about the various compounds commercially obtainable for slashing.

The question of a mill making its own sizing compound is often discussed, principally on the basis of economy. Certainly as far as the question of cost of materials alone is concerned, it would be cheaper. In the same way it would be cheaper if a man made up his own cosmetics for his wife, or his own prescriptions for treating his family. It would be cheaper as far as cost of materials is concerned if the mill bought its own oils and pigments and mixed its own paints.

In many cases, however, the cost differential would be very small. Sizing companies buy in much larger quantities than the individual mill would and enjoy quantity discounts. The cost of maintaining a laboratory at the mill to check on the quality of the raw materials would be much higher proportionately. The balancing of formulas in the mill would not be as delicate; where the commercial sizes are blends of from six to 15 or sometimes more ingredients, a formula of this type handled in the average slasher room would be subject to a very good chance of often going astray through normal human error. Very careful control methods would be required, and capable technical help would be absolutely necessary.

But the most important thing that the mill pays for when it buys commercial size compounds from a reliable firm is the experience of many technical experts who are not the usual laboratory type of theorists alone, but who combine practical experience in many mills under all sorts of conditions over many years with the laboratory facilities maintained by the sizing companies.

The services of the sizing specialists as textile engineers in the weave room and slasher room have often been worth many times over the cost of the compound. The real value of all this can only be appreciated by the luckless superintendent who has at one time decided to experiment with an inferior compound, and ended with rotted slasher blankets, and a weave room full of bad warps, with all the weavers working at top speed to keep the looms running, cursing the slasher room meanwhile.

Murchison Warns Against Attacks on Price Structure

DEPLORING the utter recklessness of present assaults on the price structure," Dr. C. T. Murchison, president, Cotton-Textile Institute, declared before the annual meeting of the Alabama Cotton Manufacturers Association in Biloxi on April 14 that such "crowbar methods" could easily lead to disastrous consequences.

"There is much loose and irresponsible talk about the necessity for price reductions," he declared. "If reports from Washington are to be believed, there is the threat of hasty action on the part of the Government. Both of these developments are more serious than the fact of higher prices. If prices are broken down by crowbar methods, the results will be disastrous".

In a period of rapidly breaking prices, he pointed out, public confidence in values melts away, buyers desert the market being fearful of making commitments unless sure that the bottom has been reached, selling operations are brought to a standstill, heavy losses are suffered, inventory values shrink, production is curtailed, unemployment appears like mushrooms everywhere, breadlines begin to form, and wage structure cracks as did the price structure.

"An alternative such as this," he went on, "is not idle speculation. History has shown it to be the inevitable outcome of every general price collapse. One would infer from the current fanaticism over prices that the American people were undergoing great hardship and destitution. Such an assumption, of course, is pure nonsense."

The present economic situation, he declared, is one that any country in the world should be proud to have. Any other country in the world possessing our situation would revel in happiness and pray to the Lord that it be continued forever, he added.

"If markets for manufactured goods are allowed to take their due course in making such gradual adjustments as are from time to time justified by the relationships between production and consumption, prices will steadily tend downward, thus automatically creating an increase in real income and still further expansion of consumption. Already enough has happened in food and textiles to show what normal economic processes can do if given time."

The chief responsibility of manufacturers and distributors at this time, he said, is to keep goods flowing. Under present conditions, no recession is possible unless goods are held back from the market. The great majority of cotton textile producers, he added, realize that to hold goods back constitutes business suicide, the result being that stocks now in the hands of mills are abnormally small.

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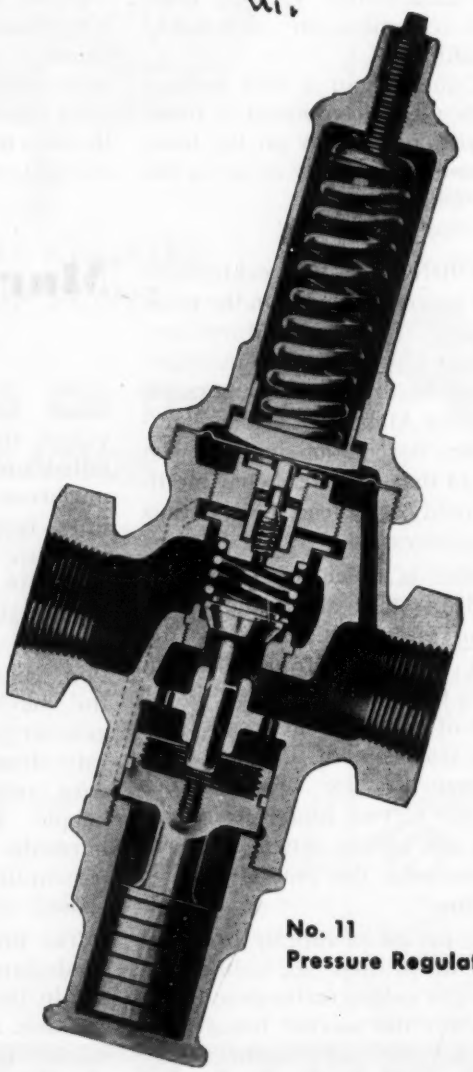

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DRAPER LOOM FIXING

By BEN H. CRAWFORD
Southeastern Engineering Company

Article 18

THE THIRD part of the "job breakdown" on the basic motions of the Draper loom is presented here. The first section appeared in the March 1947 issue, covering assembling and setting instructions for the picking motion.

The second section, which appeared in the April issue, listed assembling and setting instructions for the shedding, beating-up and protector motions.

Readers are again reminded that the breakdown of the several major loom motions will apply generally but not necessarily specifically to any particular mill. Each mill should develop break-downs to fit its own specific needs for looms, attachments, and settings required to weave the type of fabrics being made.

It is expected that some loom men will not agree with some of the settings and procedures outlined. The author has yet to find even two loom fixers who agree as to how all of the various parts and motions of the loom should be set. Therefore, these break-downs are not hard and fast rules to follow, but instead may provide a pattern for the mill to use in developing its own instructions.

Let-Off Motion: Assembling and Setting

Steps in the Operation	*Necessary Information*
1. Attach let-off pinion shaft bearing and tighten slightly.	1. By bolts to back girt and loom side in proper bolt holes.
2. Place pinion gear on pinion shaft.	2. On keyway end.
3. Line up keyways.	3. In gear and shaft.
4. Insert key and drive in.	4. With hammer.
5. Slip shaft through bearing.	5. Until gear is flush with bearing.
6. Attach right and left hand beam locks.	6. To stands on loom sides.
7. Fit right hand whip roll shaft bearing to right hand loom side.	7. Groove in face of bearing fits over shoulders on loom side.
8. Insert bolts, position bearings and tighten bolts.	8. Measure from top of loom side to bottom of bearing. Height at which bearing is set is determined by the style of goods being run and the cover desired on the cloth.
9. Repeat steps 7 and 8 for left hand assembly.	9. ———
10. Place whiproll arms on whiproll shaft.	10. With notches to rear of shaft and up.
11. Set arms at right angles to shaft and tighten.	11. Just inside whiproll shaft bearings. Final setting determined by goods being run.
12. Cut and insert leather shims for notches in arm.	12. Bevel bottom edges of shims.
13. Insert whiproll shaft in whiproll shaft bearing.	13. In front notch.
14. Position whiproll lever collar.	14. On let-off end. Teeth to outside.
15. Position whiproll lever on end of whiproll shaft.	15. On let-off end. Teeth to inside.
16. Set lever and tighten bolt.	16. About half way between bottom and back center.
17. Place empty beam in beam lock.	17. In running position.
18. Adjust height of pinion shaft bearing and tighten.	18. Do not let weight of beam rest upon pinion gear. Mesh teeth on flange of loom beam with pinion gear to allow slight play.
19. Attach beam lever bracket to inside face of loom beam.	19. At bottom of slots.
20. Insert beam lever shaft in bearing.	20. ———
21. Place collars on shaft and tighten.	21. One on each end, flush with loom side.
22. Position and tighten beam lever to beam shaft.	22. Head of lever clears inside of loom beam flange about 2″.

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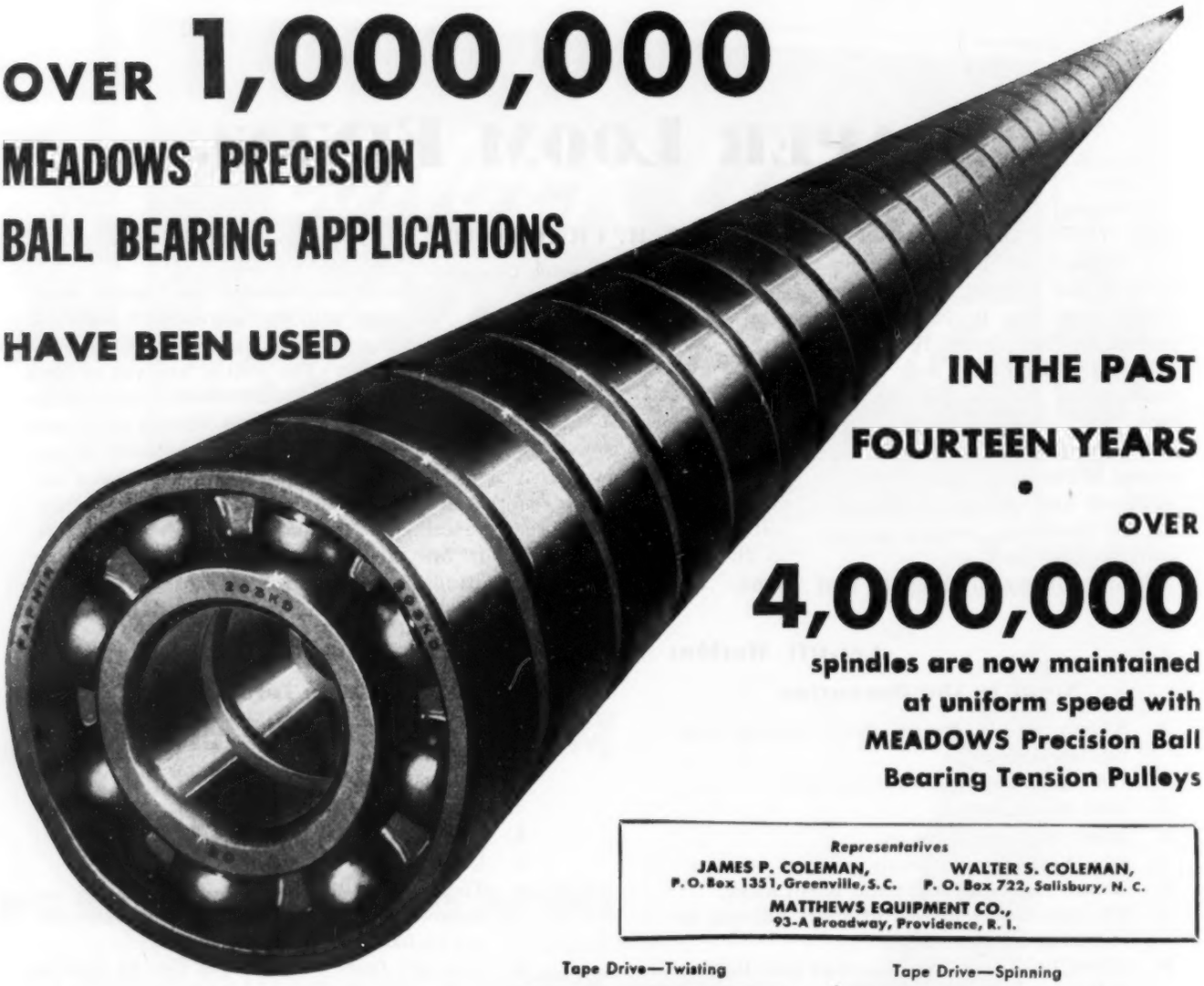

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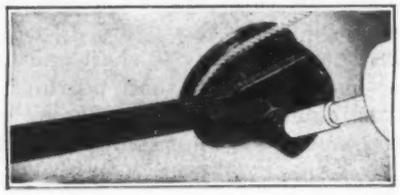
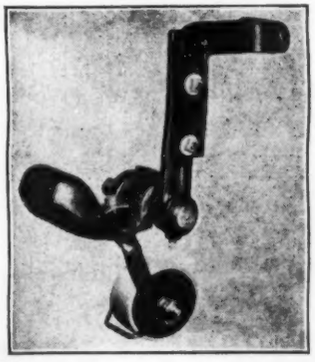


Tape Drive—Twisting



Tape Drive—Spinning

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Steps in the Operation	Necessary Information
23. Insert controlling lever bushing bolt in controlling lever stand.	23. From left to right.
24. Attach controlling lever stand to loom side.	24. Setting made in step 37.
25. Place controlling lever bushing in controlling lever.	25. Flange of bushing away from flanges of lever.
26. Place lever and bushing on lever bolt and tighten bolt.	26. Flanges of lever to outside.
27. Place whiproll vibrator rod on stud of controlling lever.	27. Through slot in stand.
28. Place leather washer on rod.	28. Against face of stand.
29. Place steel washer on rod.	29. Against leather washer.
30. Place vibrator spring on rod.	30. Against steel washer.
31. Place preventer spring collars on rod.	31. Against spring with teeth meshing.
32. Fit vibrator rod into hole through whiproll lever plug.	32. End of rod flush with top surface of plug.
33. Tighten set-screw in plug.	33. ———
34. Fit controlling lever link on lever link.	34. On projection on lever link, with outside curve of controlling lever link toward front of loom.
35. Position washer and insert cotter pin.	35. On projection on lever link.
36. Place lever link on beam lever shaft and set.	36. Ball of controlling lever link at bottom of flanged recess of controlling lever with beam lever against barrel of empty beam.
37. Set controlling lever stand.	37. So that vibrator rod centers slot in controlling lever stand.
38. Attach controlling lever spring stand to loom side.	38. With stud on stand in line with slot in controlling lever.
39. Place leather loop in slot of controlling lever.	39. ———
40. Attach one end of spring to leather loop and other end to spring stand.	40. Through holes in loop to notch on stand.
41. Insert cotter pin.	41. Through spring stand.
42. Attach let-off guard to loom side.	42. Fits under controlling lever spring stand.
43. Set center of guard with center of pinion shaft.	43. Approximate setting.
44. Place pallet lever bushing in pallet lever and position on let-off pinion shaft.	44. Fits flush with pinion shaft bearing with pallet to outside. Should not bind against ball of controlling lever link.
45. Attach driving rod arm to parallel foot.	45. Perpendicular to foot.
46. Place connecting rod in connecting rod collar and tighten slightly.	46. ———
47. Place collar over stud on driving rod arm.	47. Set-screw up.
48. Attach circle of connecting rod to pallet lever.	48. Over stud on bottom of lever.
49. Place washer on stud and cotter pin through stud.	49. ———
50. Place let-off rachet wheel on pinion shaft.	50. Against pallet lever with cam to outside.
51. Place friction clamp on friction drum.	51. Loop of clamp fits over beam lever shaft.
52. Attach let-off outside bearing support to let-off guard.	52. Center bolt holes. Temporary setting.
53. Place pinion crosshead on let-off rachet wheel.	53. Between friction clamp and eccentric cam with high side (shoulders) out. Loop of crosshead fits on beam lever shaft.
54. Place internal gear on pinion shaft.	54. Lugs on gear fit into slots in crosshead.
55. Place internal gear on pinion shaft.	55. Teeth on inside of gear mesh with teeth on crosshead gear.
56. Place let-off pinion shaft arm on pinion shaft.	56. Tooth of shaft arm fully meshed with teeth on outside of internal gear.
57. Tighten shaft arm to pinion shaft.	57. So there is no end play in pinion shaft.
58. Attach let-off outside bearing.	58. To outside bearing support and over drum of let-off pinion shaft arm.

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Steps in the Operation	Necessary Information
59. Attach pinion shaft handle hub.	59. Pin through outside bearing in place.
60. Loosen set-screw in connecting rod.	60. ———
61. Turn crank shaft to front center.	61. ———
62. Press pallet lever fully against stop on controlling lever stand.	62. ———
63. Move pallet lever back toward the front of the loom.	63. One tooth on let-off ratchet wheel.
64. Move connecting rod into cuff and tighten.	64. To remove all lost motion between pallet lever and driving rod arm. Top of pallet lever should be about ⅛" from stop on controlling lever stand with crank shaft on front center.
65. Adjust tension on vibrator rod spring.	65. To secure correct cloth width. Compressing spring decreases width. Expanding spring increases width.
66. Adjust friction clamp.	66. To prevent the ratchet wheel moving beyond the number of teeth indexed by the pallet lever on any one let-off stroke.
67. Test let-off motion for binding by loosening friction clamp and turning ratchet wheel by hand.	67. Pinion shaft arm must stay in mesh with internal gear for complete revolution of internal gear. Adjust outside bearing support and outside bearing if necessary.
68. Cut and insert leather shims.	68. In back notches of whiproll arm.
69. Insert whiproll in whiproll arms.	69. In back notches.
70. Attach whiproll cam and tighten slightly.	70. To outer end of loom crank shaft.
71. Attach whiproll cam follower.	71. To end of whiproll.
72. Set cam straight up.	72. With crank shaft between bottom and front center, and reed one inch from fell of cloth.

Take-Up Motion: Assembling and Setting

Steps in the Operation	Necessary Information
1. Place take-up shaft gear on take-up shaft and insert key.	1. Drive in with hammer.
2. Attach take-up shaft bearing bracket to loom side.	2. Shoulder on bracket flush with loom side.
3. Place stud of take-up shaft bearing in bracket.	3. ———
4. Insert take-up shaft in bearing.	4. ———
5. Place take-up shaft driving gear on end of cam shaft and insert key.	5. Face of gear flush with face of left hand camshaft bearing.
6. Adjust the height of take-up shaft bracket on loom side and depth of take-up shaft bearing stud in bracket.	6. So that drive gear and shaft gear can be meshed correctly.
7. Place two take-up shaft collars on shaft.	7. Faces of collars toward ends of shaft.
8. Slip take-up shaft toward back of loom.	8. Until gears mesh correctly.
9. Place face of back collar flush with face of bearing and tighten.	9. ———
10. Position take-up worm bracket.	10. Over front end of take-up shaft and against loom side.
11. Insert bolts, adjust height of bracket and tighten bolts.	11. So that shaft is level.
12. Place front collar against bracket and tighten.	12. Flush to prevent end play.
13. Insert key in shaft.	13. Use care not to batter.
14. Place take-up worm on shaft.	14. Keyway in worm fits key in shaft.
15. Place take-up worm wheel on worm wheel shaft.	15. On threaded end of shaft.
16. Line up key warp and insert key.	16. ———
17. Attach worm wheel nut and tighten.	17. ———
18. Insert worm wheel shaft in take-up worm bracket.	18. Until face of wheel is against bracket.

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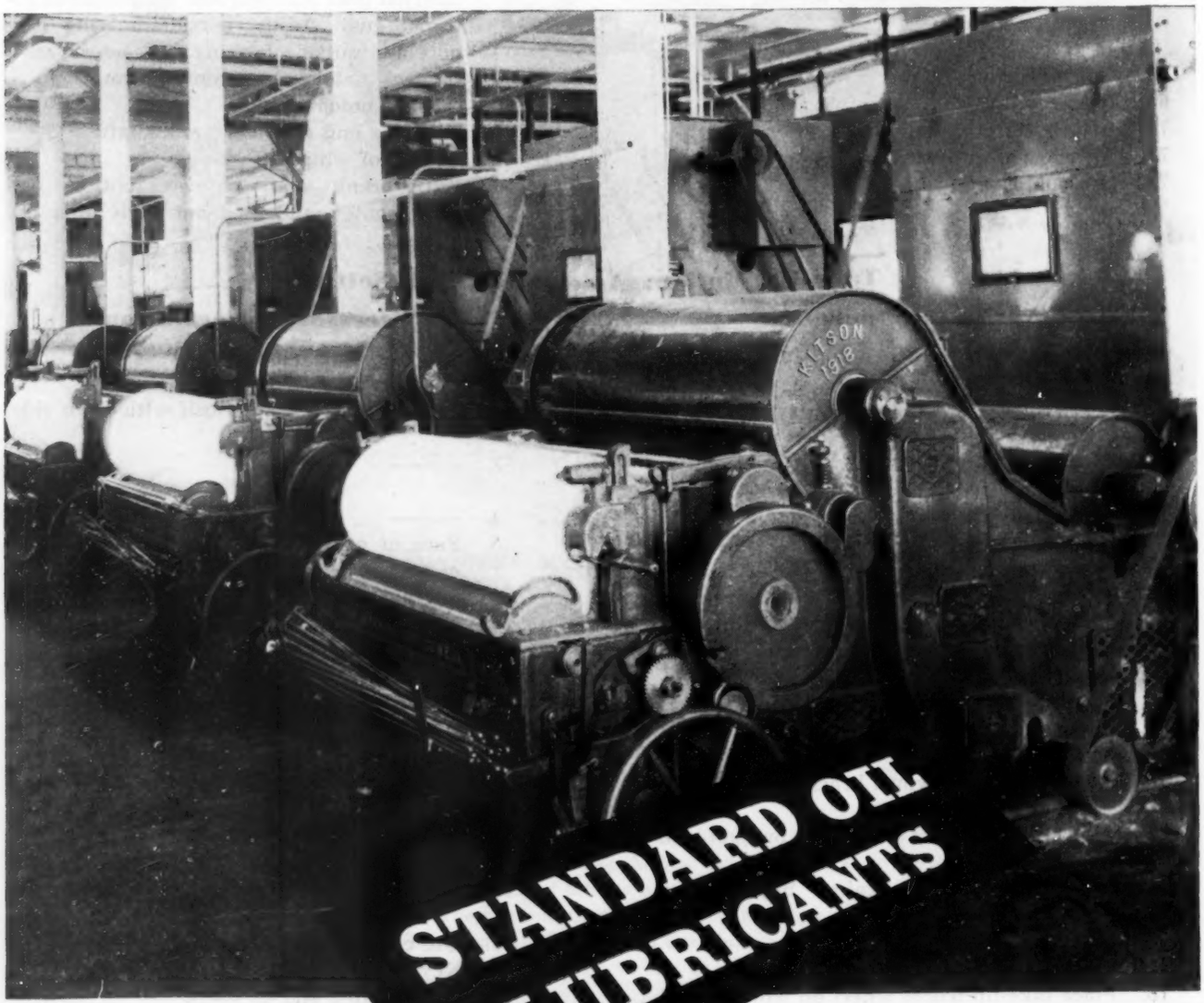

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Steps in the Operation	Necessary Information
19. Place clutch pinion gear bracket on shaft.	19. Flush with worm bracket.
20. Place clutch spring collar on shaft.	20. Against pinion gear bracket.
21. Insert key in shaft.	21. Key must be filed so that clutch, attached in step 23, will slide along key.
22. Place take-up clutch spring on shaft.	22. End of spring in circle in collar.
23. Place take-up clutch on shaft.	23. Keyway in clutch over key in shaft. Must work freely.
24. Attach take-up clutch lever to take-up worm bracket.	24. Arms of lever fit around take-up clutch.
25. Attach foot let-back treadle.	25. To stud on clutch lever.
26. Place clutch pinion ratchet on worm wheel shaft.	26. Teeth on ratchet meshing with teeth on clutch.
27. Place washer on shaft and insert cotter pin.	27. Bend ends of pin around shaft.
28. Place take-up lever on worm wheel shaft.	28. Tooth of lever over clutch pinion ratchet.
29. Place slack pawl arm on shaft.	29. Pawls over clutch pinion ratchet.
30. Place washer on shaft and insert cotter pin.	30. Spread cotter pin.
31. Place left hand cloth roll rack in left hand cloth roll stand.	31. In center groove in stud with teeth toward back.
32. Place cloth stand washer on bottom girt.	32. Curved side up.
33. Position foot of stand on washer.	33. ———
34. Insert bolt through girt, washer, and stand, and tighten slightly.	34. ———
35. Place cloth stand washer between breast beam and top of cloth stand.	35. Curved side of washer against cloth stand.
36. Insert bolt through stand washer and breast beam and tighten slightly.	36. ———
37. Repeat steps 31 through 36 for right hand assembly.	37. ———
38. Attach cloth roll bearing to right and left cloth roll rack.	38. To top of racks by cap screw and washer.
39. Place cloth roll on cloth roll bearing.	39. ———
40. Adjust positions of cloth roll stands and tighten all bolts.	40. Until cloth roll fits into bearings with shoulders of roll flush with bearing. Roll should not bind.
41. Place spring shaft collar on spring shaft.	41. From right hand end of shaft with projection toward left hand end of loom.
42. Place cloth roll spring on spring shaft.	42. From right hand end of shaft.
43. Place spring shaft worm wheel on shaft.	43. From right hand end.
44. Place spring shaft stop on shaft.	44. From right hand end.
45. Place spring shaft gears on shaft.	45. One on each end with set-screws toward center of loom.
46. Slip spring shaft into bearings.	46. Bearings cast as part of cloth stand.
47. Set spring shaft gears against bearings.	47. To mesh with teeth in cloth roll racks.
48. Attach worm crankshaft bearing.	48. On top and in middle of front girt.
49. Run both cloth roll racks to floor and tighten set-screws in spring shaft gears.	49. Cloth roll should be level.
50. Set spring shaft worm wheel.	50. With projection on wheel on top center.
51. Position cloth roll spring and tighten set-screw in spring shaft collar.	51. One end around projection on collar, other end around projection on worm wheel.
52. Position spring shaft stop.	52. So that projections on stop fits behind projection on worm wheel.
53. Attach spring shaft brace.	53. Fits over spring shaft and bolts to worm crank shaft bearing.
54. Place left hand take-up bearing on take-up roll.	54. Face of bearing to front.
55. Place take-up roll gear on take-up roll.	55. On left hand end of roll with shoulder toward bearing.
56. Line up keyways, insert key and tighten set-screw.	56. In roll and gear. With ends of parts flush.
57. Repeat steps 54 through 56 for right hand assembly.	57. ———
58. Place two bolts in each bearing.	58. From back to front.

Steps in the Operation	Necessary Information
59. Attach bearings to breast beam.	59. Secure assistance if possible.
60. Raise bolts to top of slots in breast beam and tighten.	60. Take-up roll must be at same height on both ends of loom. Height can be measured on both ends with straight edge from top of race plate to top of breast beam.
61. Adjust position of bearings or file if necessary.	61. To prevent take-up roll binding. It is best to line up bearing with a tri-shaft before placing and setting take-up roll.
62. Raise cloth roll into contact with take-up roll.	62. Must fit flush with take-up roll from end to end. Loosen spring shaft gear on end opposite low end of cloth roll to adjust.
63. Place change gear bracket bolts through take-up stand.	63. Heads of bolts next to loom side.
64. Bolt stand to loom side.	64. Temporary setting.
65. Place intermediate gear on stud of take-up stand and insert cotter pin.	65. ———
66. Adjust height of stand and bolt to loom side.	66. Until gear meshes correctly with take-up roll gear.
67. Set clutch pinion gear bracket.	67. So that clutch pinion gear meshes correctly with clutch pinion ratchet and so that the clutch pinion gear pinion is in position to mesh with change gear.
68. Tighten bolt through clutch pinion bracket and take-up worm bracket.	68. To hold pinion bracket in place.
69. Place change gear on change gear stud and attach washer and nut.	69. ———
70. Insert shoulder of stud into slot of change gear bracket.	70. ———
71. Mesh change gear pinion with intermediate gear.	71. ———
72. Tighten change gear to bracket.	72. ———
73. Mesh change gear with clutch pinion gear pinion.	73. By adjusting position of change gear bracket.
74. Tighten bolts through change gear bracket and take-up stand.	74. ———
75. Attach slack pawl stop to left hand cloth roll stand.	75. Slot in stop fits over stud on slack pawl arm.
76. Set slack pawl stop.	76. So that stud on slack pawl arm works freely the length of the slot.
77. Open clutch and test motion.	77. All gears work freely without binding.
78. Oil motion.	78. All oil holes.

Report Forecasts Future of Cotton Bag Industry

Results of a study of developments with regard to the market for cotton bags, have been compiled in a report entitled "The Market for Cotton Textiles in Bags," by Robert B. Evans, R. J. Cheatham and Barkley Meadows of the Southern Regional Research Laboratory, U. S. Department of Agriculture, New Orleans, La.

According to the authors, some of the current trends in the bag business are discussed and an attempt is made to forecast what lies ahead. The summary of their report is quoted herewith.

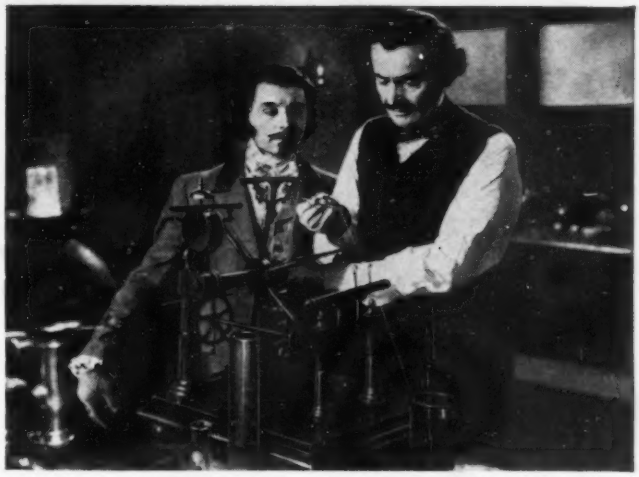
"Consumption of cotton fabrics in bags climbed from 816 million yards in 1939 to 1,283 million yards in 1943, then declined to about 700 million yards in 1946. Bags accounted for about 8.0 per cent of the cotton goods production and 4.5 per cent of total cotton consumption in the United States in 1946.

"Assuming a price for cotton of 25 cents per pound, it is estimated that about 900 million yards of cotton cloth will be used in bags in 1950 if there is high prosperity and about 844 million yards if there is moderate prosperity; with the latter figure changing to 1 billion yards if cotton is 12 cents per pound and to 477 million yards if it is 40 cents per pound.

"It is expected that consumption of cotton in bags will be adversely affected by trends toward using paper bags and bulk handling for some commodities, but that it will be favorably affected by a well sustained, overall demand for packaging materials and by a growing demand for cotton feed bags."

Rayon Reports

Prepared Monthly by American Viscose Corporation, New York, N. Y. MAY, 1947



Scene reproduced from the new Avisco Technicolor film, "Science Spins a Yarn."

New "Avisco" Technicolor Movie Depicts Science and Drama of Rayon's Growth

The beginning, growth and present-day stature of rayon... this is the story of "Science Spins a Yarn," new sound and technicolor motion picture just released by American Viscose Corporation.

Produced in Hollywood on the RKO Pathe lot by Roland Reed, "Science Spins a Yarn" provides 23 minutes of feature quality entertainment with Regis Toomey heading the top-flight cast.

Slanted primarily for school audiences, the picture illustrates the versatility of this man-made textile fiber which opened up new industries, created new jobs, and brought a wider range of fabrics into existence. The setting is a modern textile research laboratory. Flashbacks to the struggles of early rayon scientists provide chronological links in the story.

In addition to the school audiences among which the picture will have its largest circulation, a wide audience is scheduled for women's clubs, consumer groups, and AVC's 22,000 employees.

Another recent Avisco presentation is the visual unit "How Rayon Is Made." It consists of a 70-frame silent film strip, a printed commentary, a 15-minute, 16 mm. sound motion picture, and a User's Guide for the unit. While of special interest to textile students, this, as well as "Science Spins a Yarn," can be obtained for special trade showings. Simply write Dept. RR5, Consumer Relations Section, American Viscose Corporation, 350 Fifth Avenue, New York 1, N. Y.

"Avisco" Trademark Names American Viscose Products

Since inauguration of the trademark "Avisco" on April 1, products of American Viscose Corporation incorporate the word. A list of the products follows:

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Avisco viscose rayon yarn
Avisco bright viscose rayon yarn
Avisco semi-dull viscose rayon yarn
Avisco dull viscose rayon yarn
Avisco high-strength viscose rayon yarn
Avisco medium-strength viscose rayon yarn
Avisco viscose rayon tire yarn
Avisco viscose rayon tire fabric
Avisco viscose rayon staple
Avisco bright viscose rayon staple
Avisco dull viscose rayon staple
Avisco high-strength viscose rayon staple
Avisco crimped viscose rayon staple
Avisco viscose rayon carpet staple
Avisco viscose rayon tow

Acetate
Avisco acetate rayon yarn
Avisco bright acetate rayon yarn
Avisco dull acetate rayon yarn
Avisco acetate rayon staple
Avisco bright acetate rayon staple
Avisco dull acetate rayon staple
Avisco acetate rayon tow

Vinyon*
Avisco Vinyon* resin yarn
Avisco high-strength Vinyon* resin yarn
Avisco medium-strength Vinyon* resin yarn
Avisco Vinyon* resin staple
Avisco Vinyon* resin tow

*Trademark C. & C.C.C.

RAYON 20 YEARS AGO

A rayon knitwear manufacturer, whose plant ran full time last year, reports not a single garment returned to him for any reason whatsoever.

Three quarters of all lining materials for men's and women's clothing in England now contain rayon, a British textile authority states.

A leading women's wear manufacturer has recently exhibited a coat made of rayon that resembles soft crocodile leather.

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CHARLOTTE • N. CAROLINA

LABORATORY methods and quality control were discussed by Carl Brandt of Whitin Machine Works, Whitinsville, Mass., at the regular meeting of the Gaston County division of the Southern Textile Association, held in Gastonia, N. C., April 4.

Mr. Brandt described use of several testing instruments that aid in control of processing stock on the cotton system.

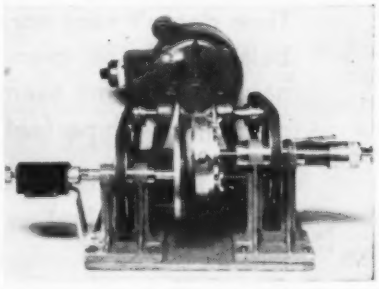
At the Gaston County STA meeting. Left to right, Carl Brandt of Whitin; John Caughman, Spartan Mills, president fo the Southern Textile Association; and Marshall Rhyne, STA divisional chairman.

Abrasion Tester for Textiles

The National Bureau of Standards is at present engaged in research on the measurement of resistance to abrasion as a part of the broad program on abrasion conducted by the Office of the Quartermaster General. One of the major problems in this work has been the design and development of an abrasion machine that will abrade a plane area of a specimen uniformly over the entire surface and from every direction in its plane. A complete mathematical solution to this problem has been worked out by Herbert F. Schiefer, and a machine based upon the solution has been constructed at the Bureau.

In the mathematical solution that was obtained, the abrasion at any instant is constant in magnitude and direction over the whole abraded area. From instant to instant the amount of abrasion remains constant, but the direction changes continuously through 360° in each cycle. This general solution requires that plane areas of the abradant and of the specimen, which are in contact under pressure, rotate in the same direction and with the same angular velocity. The specimen must at all times be completely in contact with the abradant, and the specimen and abradant must not be coaxial. The specimen may revolve about the center of the abradant with any angular velocity in the same direction as its rotation or in the opposite direction.

The simplest solution from mechanical considerations is the special solution in which both abradant and specimen rotate in the same direction and with the same angular velocity while the specimen does not revolve. In the accompanying photo is a machine based upon this special solution which has been constructed and found to operate satisfactorily for a wide variety of textile products.



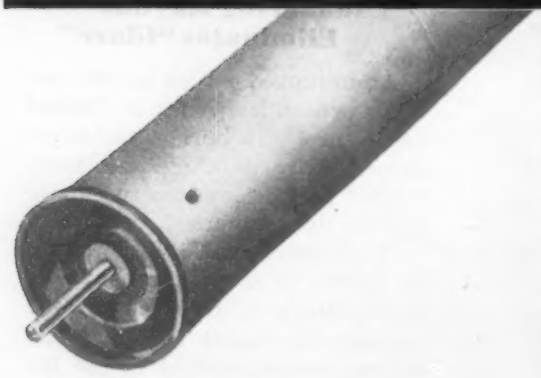
A new feature of this machine is the abradant. It consists of a disc 4½ inches in diameter, in one face of which are inserted a series of parallel strips of clock spring, 0.025 inch thick and spaced ⅛ inch apart. The edges of these springs, ground and lapped to a plane surface, constitute the abradant for textile materials. Although tests indicate that the abrasive effect of this device remains constant, the abradant is obviously not uniform over its entire area. Any effect on the result of a test due to nonuniformity in the abradant is eliminated by rotating the abradant once more than the specimen in every 240 rotations.

New Process for Laundering Rayons Eliminates "Glaze"

An improved job on rayons and other synthetic fabrics is claimed for a new laundering technique described by the American Institute of Laundering in a recent report to its members.

"Pre-conditioning" of the fabrics by means of warm, moist air before pressing is the basis of the process, the report explains. The process was developed at the Institute's laboratories under a research fellowship of the Celanese Corporation of America.

The process is said to help eliminate the "glazed" appearance sometimes seen in garments made of synthetic fabrics after pressing. In the new process, moisture is drawn into the tumbler or dryer along with the warm air. After removal from the tumbler, the garments are allowed to condition for an hour before pressing. They are then finished on the regular laundry press, being pressed and brought to complete dryness at the same time.



JENKIN'S *Dynamically Balanced* SPINNING CYLINDERS

BALANCE IN MOTION!

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This absolute balance in motion eliminates harmful vibration . . . permits higher cylinder speed without costly breakdowns due to premature bearing failures . . . reduces wear on journals, travelers, and rings. RESULT! Higher production . . . Lower costs!

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GASTONIA, NORTH CAROLINA

STA Hears Seydel Discuss Warp Sizing

Meeting in Greenville, S. C., April 19, the South Carolina division of the Southern Textile Association heard Dr. Paul V. Seydel of Seydel-Woolley Co., Atlanta, discuss warp sizing. Dr. Seydel, whose series on "Cotton Warp Sizing" are appearing currently in this magazine, based his address on information which has appeared or will appear in future installments of the series.

Materials handling methods were described by V. G. Brookshire of Engineering Sales Co., Charlotte, N. C. For principles involved, see December 1946 issue of TEXTILE INDUSTRIES. Mr. Brookshire, who specializes in materials handling methods, particularly in the textile industry, illustrated his address with slides.

Job J. Mills, consulting engineer, Greenville, S. C., discussed the making of uniformly even yarns on modern machines. Mr. Mills traced the trends within the industry, and then discussed technical questions pertaining to single and double roving in spinning.

Report of Conference on Education and Training

An interesting report of a conference held in Manchester, England, in September 1946 on the subject "Education and Training for the Cotton and Rayon Industry", was recently received from the Cotton Board, Recruitment and Training Department, 81 Fountain St., Manchester 2, England.

The report consists of a compilation of papers presented and discussions held at the conference which was organized by the Cotton Board with the collaboration of the British Rayon Federation, the Textile Institute, and the Textile Teachers' Association.

Safety is Theme at Raleigh STA Meeting

OPERATING executives of the Eastern North Carolina Division of the Southern Textile Association studied safety methods at the March 29 meeting at the textile school of N. C. State College in Raleigh, N. C.

Accident prevention was the subject of an address by E. L. Dorsey, Jr., of American Mutual Liability Insurance Company; his address was followed by open forum discussion and questions by the mill men.

Mr. Dorsey pointed out that the control of accidents within the plant is proportional to the ability of the operating management, tossing this statement to the group as a challenge to make the accident record as good as the manufacturing record. "Accident prevention cannot be a thing apart," he continued, "but must be part and parcel with the manufacturing program. The success of the accident prevention program reflects the success of the plant as an enterprise."

The speaker emphasized that the training of supervisors in accident prevention is just as important as selling them on the accident prevention program. Supervisors may be sold on the program, but unless they are qualified to carry out the program it will not be successful.

During the discussion period information offered indicated that some of the mills actively participate in safety programs by (1) instructing the worker that the safety program is for his benefit, (2) reporting accidents at once, (3) applying first aid immediately and determining the cause of the accident, (4) paying the operative for time spent by him in receiving treatment, (5) instructing operatives on safety methods at the time of employment.

Seen at the meeting were (left to right) M. R. Harden, Erwin Cotton Mills, Durham, N. C., Sydney Green, Eno Cotton Mills, Hillsboro, N. C., Virgil McDowell, Rosemary Mfg. Co., Roanoke Rapids, N. C., E. L. Dorsey, Jr., American Mutual Liability Insurance Co., Charlotte, N. C., J. E. Shaw, Roanoke Rapids, N. C., E. C. Horner, Oxford Cotton Mills, Oxford, N. C., A. R. Marley, Erwin Cotton Mills, Durham, N. C. Mr. McDowell is vice president of the Southern Textile Association.

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How OTHER MEN Manage

Comments on Handling Employee Suggestions

A CONTRIBUTOR discusses the article "Handling New Ideas in Textile Mills" which appeared in the January 1947 issue. Importance of giving proper credit to the employee responsible for the suggestion is emphasized. He recommends a tactful and aggressive attitude on the part of management with regard to employee suggestions.

EDITOR TEXTILE INDUSTRIES:

The January 1947 issue of TEXTILE INDUSTRIES carried an interesting article by Ivar Moberg on the handling of employee suggestions. We have long been of the opinion that the proper handling of this problem is one important factor in building employee goodwill, and too many mills are overlooking this fact.

Most men—and women as well—like to show other people things which they have made themselves or that others have made on their suggestion. A few months ago the writer visited a mill in which he formerly worked and, with a great deal of pride, he noticed that they were still using an item on a spooler which he had suggested and had been paid for when he worked there several years ago. What is true of the writer is also true of other folks. We are just made up like that.

Emphasizes Importance of Proper Credit

One thing which Mr. Moberg did not mention was the fact that in some cases employee suggestions have been utilized by the mill without proper credit being given. We do not pretend to know why some people are like this, but they want only themselves to get credit for any improvements in their departments.

We heard of one overseer whose second hand would come in with a suggestion. The overseer would do all he could to discourage him, telling the second hand that the thing would not work, and would throw the sketch which had been handed him in the waste basket. Later, when the second hand had gone out, he would fish the paper out of the waste basket, make a few changes in the drawing and in a few days come up with an important improvement which *he* had devised! One can imagine how the second hand must have felt toward his overseer.

We realize that if a foreman is opposed to a certain suggestion or improvement, it will be difficult to force it upon him; but we believe that if top management will take a tactful as well as an aggressive attitude in the matter of employee suggestions, almost any overseer can be persuaded to give any suggested improvements a fair trial.

We think that Mr. Moberg is right in his statement that the committee which reviews employee suggestions should include at least one person who is mechanically-minded, can visualize an apparatus in actual operation and can thus explain the technical points to his colleagues who may not be so well endowed.

As a further assurance that any worker will get at least an even break we think the membership of the committee should include one or more workmen from the plant and that when possible membership on the committee should be rotated so that in the course of a year each department will be represented.

It might even be well for the original suggestion to be kept by a disinterested clerk in the main office and that copies of the suggestion be furnished the committee with no identification other than a number so that it can be passed upon without prejudice and on the merits of the suggestion.

All suggestions, of course, are not mechanical devices. They may be in the nature of changes in routing material, relocating machines, handling waste, machine settings, methods of processing the stock, lubrication procedure, etc. If the representative of management on the committee feels that the committee is not thoroughly qualified to pass on any suggestion of this nature, then expert advisers should be called in to assist the committee. For example, a lubrication engineer could be called in to discuss certain features of oils or oiling, or a materials handling expert could be invited to assist in the problem of routing material, handling heavy objects, etc.

We feel that Mr. Moberg's article is very timely and we agree with most of his conclusions.

CONTRIBUTOR NO. 7909.

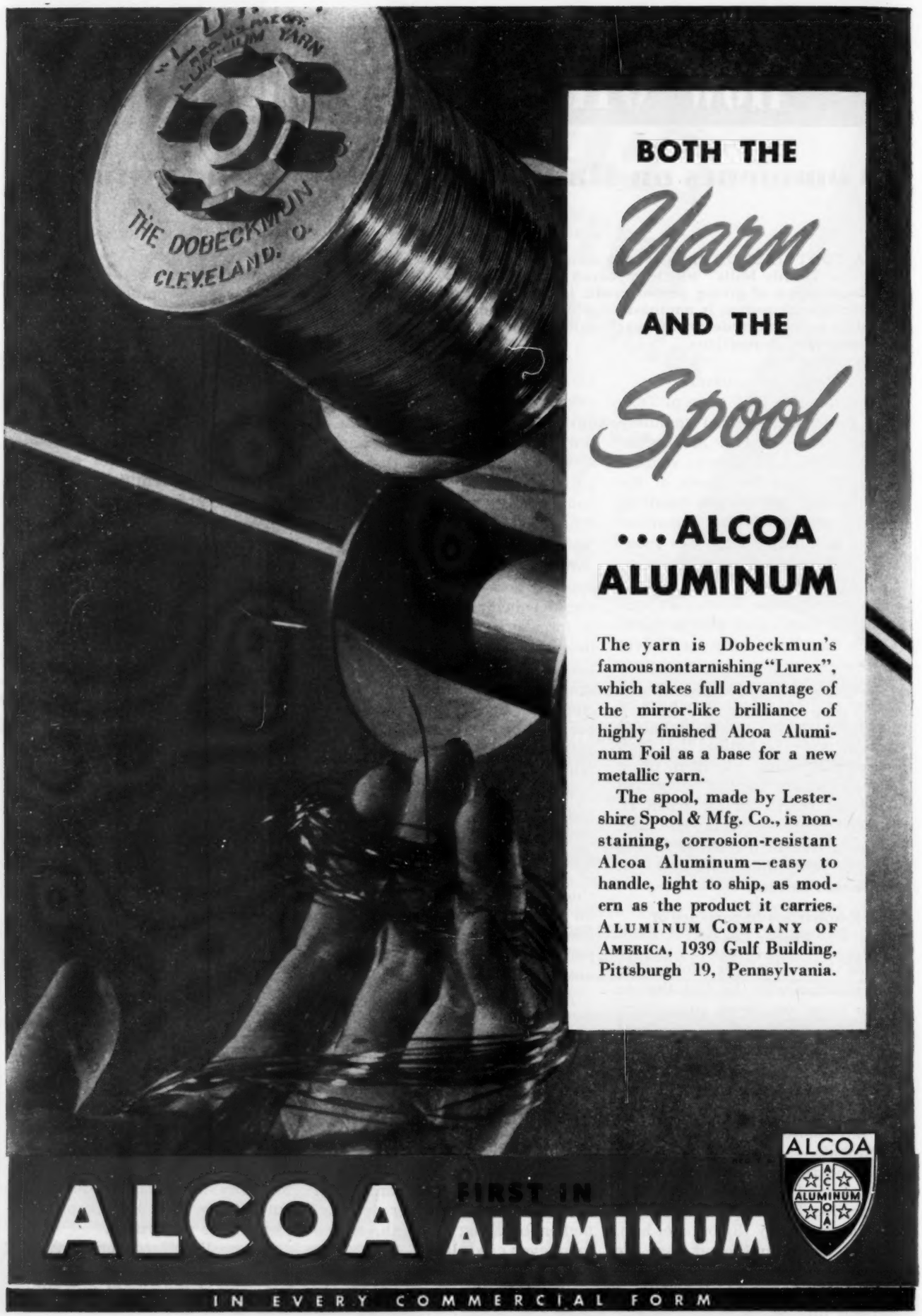
Experimentation on Cards

EDITOR TEXTILE INDUSTRIES:

We are in the process of experimentation on our cards with the hope of getting better cleaning, higher breaking strength, and a more even card sliver.

Thus far, our tests have been confined to the changing of our licker-in speed from 350 rpm to 450 rpm. We are not too well pleased with our results since the breaking strength is lowered without any apparent improvement in cleaning or uniformity.

We realize, however, that the stock we are using might be a factor, since it consists of a blend of 50% Strict Good Ordinary cotton



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and 50% card strips from 1 1/16-inch Middling cotton.

We would appreciate any information that your readers might have concerning such experimentation.

CONTRIBUTOR No. 7851.

(This question was submitted to CONTRIBUTOR No. 7872 *prior to publication. His answer follows.)*

EDITOR TEXTILE INDUSTRIES:

We have been making some tests in an effort to improve our carding and have increased the speed of the cylinder 12½%, leaving the other parts intact. We also made some experiments on feeding-in and taking out the same amount of stock.

In addition to the cards, we have been able to speed everything up in proportion without lowering quality of our yarn. However, we use 1 1/16-inch Strict Middling cotton.

It is my opinion that CONTRIBUTOR No. 7851 is using a mixture that is too low in quality to get the results that he is seeking. It would be possible for him to speed up his flats for better cleaning, but this is not recommended with the low grade of stock being processed.

CONTRIBUTOR No. 7872.

Improvised Cutter for Wide Looms

EDITOR TEXTILE INDUSTRIES:

There are several short cuts that may be effected on looms in accomplishing a result that many mill men would like to have before the cloth is doffed from the machine.

When weaving two fabrics of the same type and width on a wide loom, there are two selvages, one on each fabric, that are connected by picks of filling about one-half inch long. This is the separation point of the two fabrics, there being no warp ends interlaced with these picks of filling.

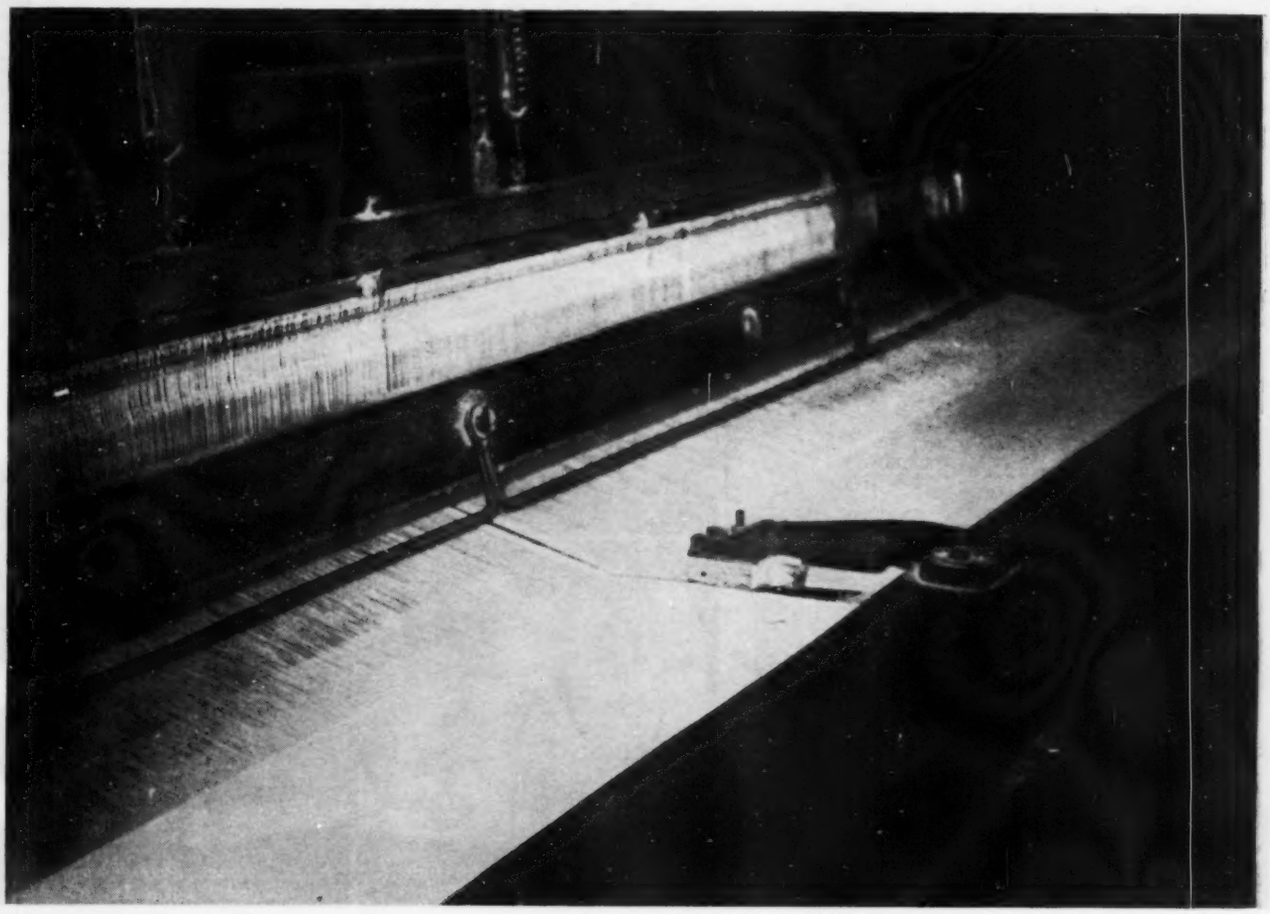
It is necessary to separate the two fabrics by cutting the connecting picks of filling. This can be done automatically on the loom rather than waiting until the cloth is doffed.

A good automatic cutting knife may be made by inserting a razor blade in a slot and securing it with a setscrew on an arm that is fastened to the breast beam of the loom. This arm may be cast in a foundry, or it is possible to fashion one from discarded loom parts.

This arm should extend over on the cloth, preferably about two inches beyond where the fabric comes in contact with the sandroll. As the cloth is wound on the roll, the connecting picks of filling between the two fabrics will come in contact with the cutting knife (razor blade) and be neatly severed. Of course, the short pieces of filling extending from the edge of the cloth are burned off.

The accompanying photograph illustrates the home-made type of cutting knife that we use for cutting double-width bedspreads and sheetings made on wide looms.

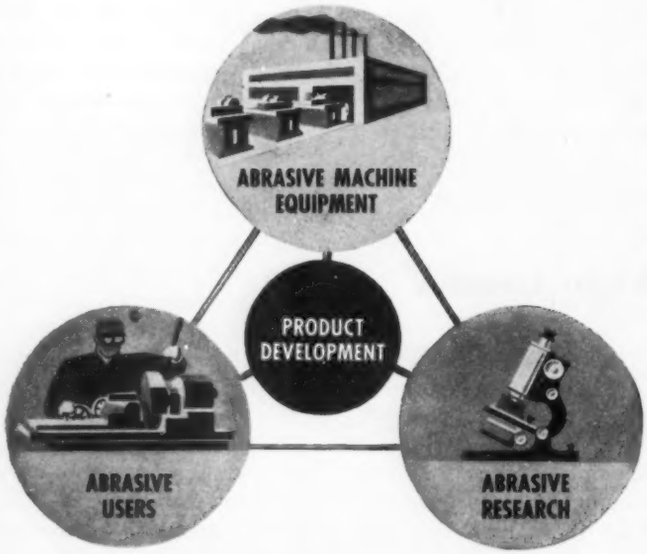
CONTRIBUTOR No. 7845.



A BUYING GUIDE FOR ABRASIVES

POINT No. 4

PRODUCT DEVELOPMENT



There is an important activity at The Carborundum Company concerned primarily with the interest and viewpoint of abrasive users. It is known as "Product Development."

Key step between research and abrasive user, its ten specialized divisions aim toward developing and applying the right abrasive in the right place. It closely relates abrasive machine builders, plant production personnel, and our own research. It evaluates products and techniques. It conducts rigid tests. Vital information is collected and interchanged. Hundreds of suggestions are carefully culled. Selection and application of abrasives thus continue to be made more effective. This is another reason for preferring products by CARBORUNDUM. The Carborundum Company, Niagara Falls, New York.

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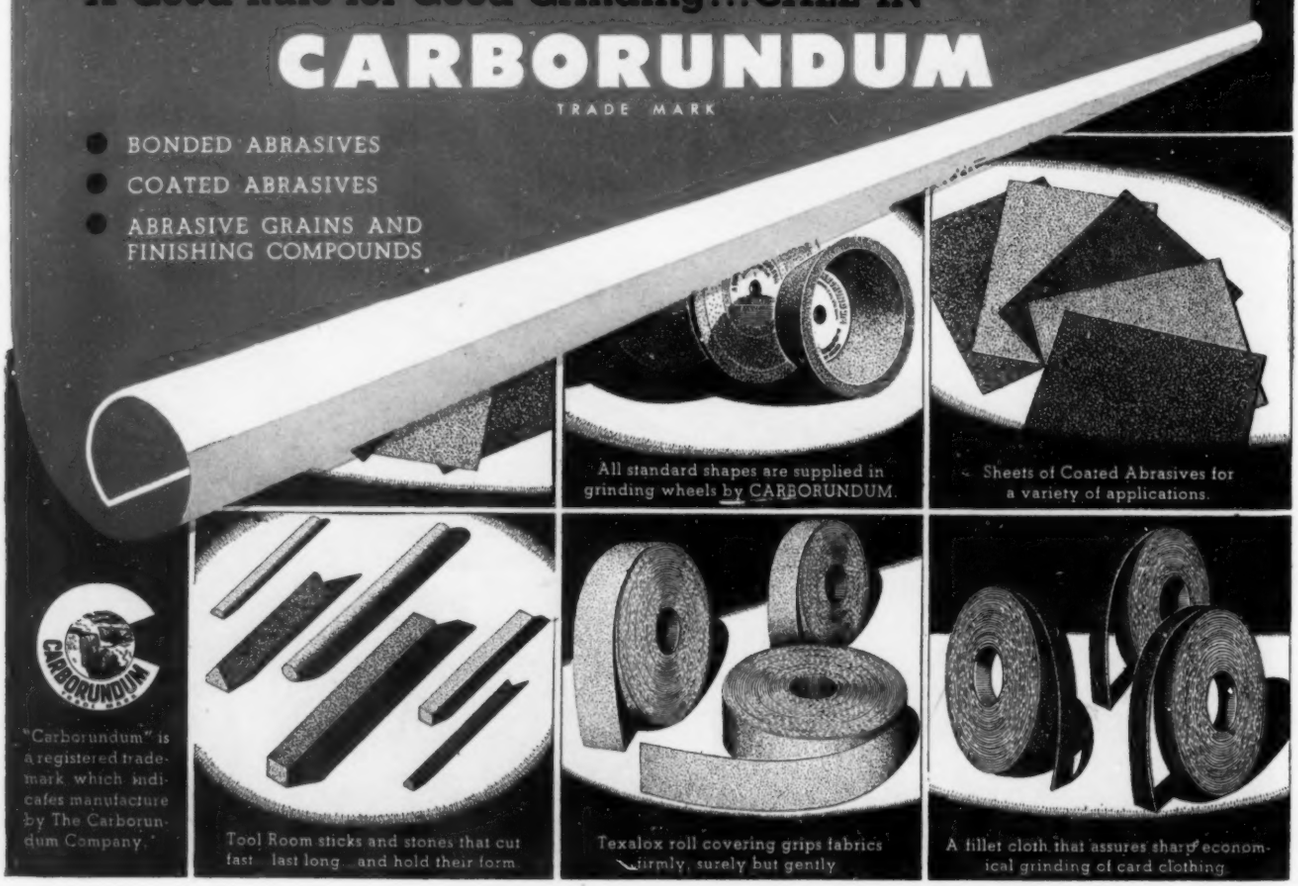

All standard shapes are supplied in grinding wheels by CARBORUNDUM.

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Tool Room sticks and stones that cut fast... last long... and hold their form.

Texalox roll covering grips fabrics firmly, surely but gently.

A fillet cloth that assures sharp, economical grinding of card clothing.

Card Sliver Reducer

Question briefed: *What causes the variations in the weight of sliver produced with the card sliver reducer as compared to slivers made with card calendar rolls? (Contributor No. 7246, Feb. 1947).*

EDITOR TEXTILE INDUSTRIES:

Two of our cards are equipped with the card sliver reducer. We have been making tests on the yarn produced from sliver off these two cards and comparing results with tests on yarn produced from sliver made on cards equipped with the conventional calender roll.

We make fine combed yarns, the entire production being used in the knitting of hosiery and tubular fabrics for the manufacture of sweaters, jumpers, jerseys, etc.

The card sliver reducer enabled us to eliminate one process of drawing. The production on the two cards equipped with it was increased 25%. We took the sliver from the card and ran it on combers, through one process of drawing, through two roving processes, thence to the spinning frame.

We have not noticed any appreciable difference in the yarn made with the card sliver reducer and that produced from sliver made on cards equipped with the conventional card calender roll.

CONTRIBUTOR NO. 7883.

Question to Editor

EDITOR TEXTILE INDUSTRIES:

We are experiencing at the present time trouble in securing the services of young girls, say 16 years of age or older, for the cleaning of fly frames and also spinning frames.

At a recent meeting of our overseers this matter was again discussed, and the suggestion was made that we use elderly men—40, 50 or 60 years old—or females of like ages for doing this type of work.

Advice from your readers as to what type of help is being used in the larger mills for cleaning fly frames and spinning frames will be greatly appreciated.

CONTRIBUTOR NO. 7914.

Build Your Own Roving Bobbin Cleaner

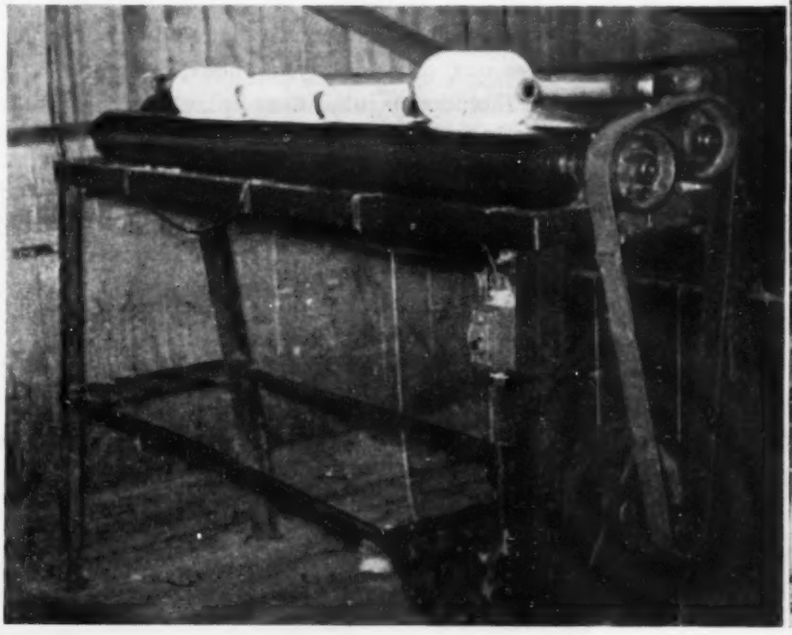
EDITOR TEXTILE INDUSTRIES:

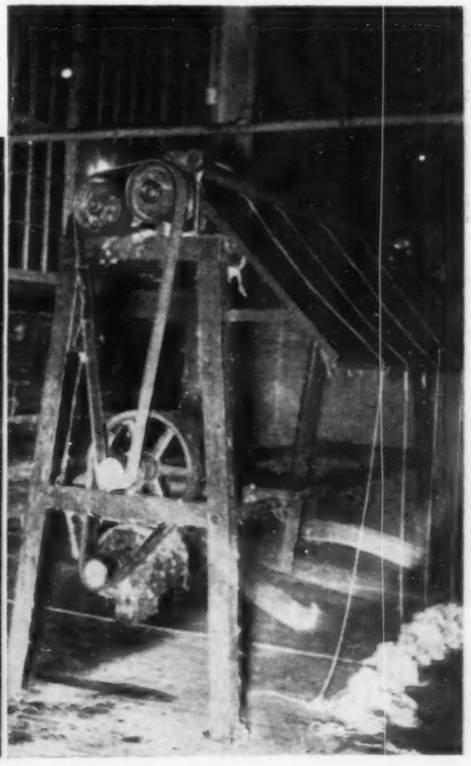
There are still quite a number of plants that dispose of defective roving by cutting it off the bobbin with a knife. This is a waste of time and effort when it is so easy to construct a machine that will quickly unwind the faulty roving from the bobbins, leaving the bobbins undamaged and depositing the roving in front of the machine in a box or on the floor.

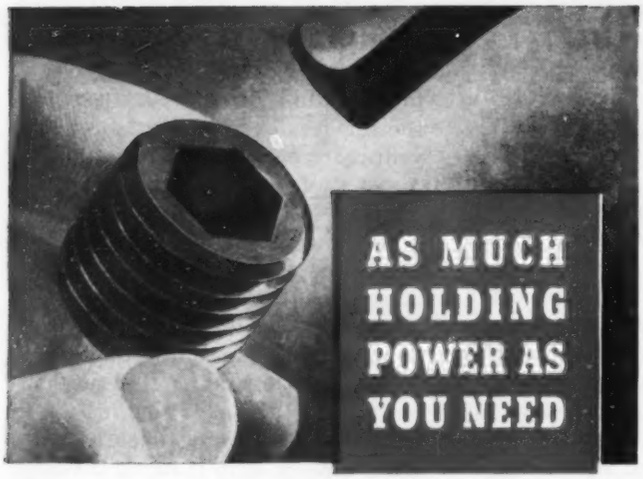
All that is needed are two rollers or cylinders about four inches in diameter, another roller two inches in diameter, an electric motor, some angle iron and necessary pulleys. (See accompanying photos.)

The small roller rests on the large front roller and receives its motion by frictional contact with it. The two large top rollers are directly driven by the motor. Bobbins are placed between the two rollers and the ends of the roving are passed under the small roller and thence to the floor or a box. This method quickly unwinds all defective roving.

CONTRIBUTOR NO. 7919.







Whether a "hex" socket screw is right for your fastening, or—because of small size of components, vibration conditions or ease of disassembly—the BRISTO "Multiple-Spline" is needed, you get *maximum strength* from Bristol's "B-Line".

Both the "Hex" and "Multiple-Spline" socket screws represent careful, correct design by Bristol engineers. In addition, Bristol's system of raw material control *keeps* quality up to rigid standards. And Bristol's inspection methods, which include tests for hardness and ultimate strength, gauging for precision of lead and pitch—plus a final visual inspection before packing—result in "Hex" and "Multiple-Spline" screws that feature maximum strength . . . uniformity . . . accuracy.

For extra security—at no extra cost—select the right style from the Bristol "B-Line"—made by a manufacturer with 33 years' experience in socket screws. Order from your distributor. THE BRISTOL COMPANY, Mill Supply Division, 125 Bristol Road, Waterbury 91, Conn.

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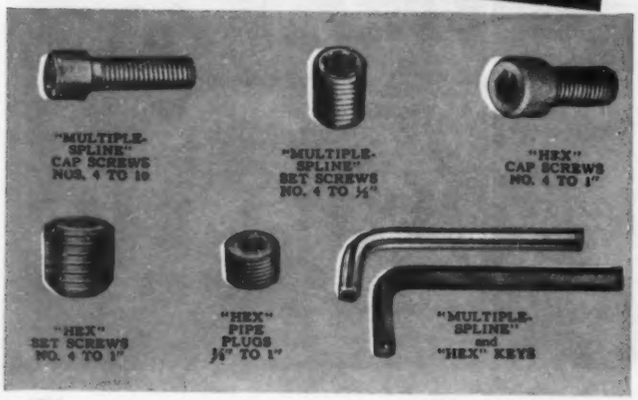

"MULTIPLE-SPLINE" CAP SCREWS NOS. 4 TO 10
"MULTIPLE-SPLINE" SET SCREWS NO. 4 TO ½"
"HEX" CAP SCREWS NO. 4 TO 1"
"HEX" SET SCREWS NO. 4 TO 1"
"HEX" PIPE PLUGS ⅛" TO 1"
"MULTIPLE-SPLINE" and "HEX" KEYS

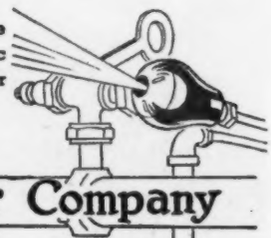
Humidifiers or Humidification

Where desperate need for moisture exists, anything labeled "humidifier" can hardly fail to help. Thus "humidifiers" sometimes get more credit than they deserve.

Mysterious looking objects delivering moisture and humidification have little in common. Humidification reckons with many things; the changing demand of the seasons, of each day, or hour, or minute. It includes peculiarities of plant, processes and product. Finally, it aims at more and better production.

Yes, "humidifiers" may help. Genuine humidification produces astounding results.

No piping changes. The self-cleaning Turbomatic interchangeable with earlier and other models.



Parks-Cramer Company

Fitchburg, Mass. Boston, Mass. Charlotte, N. C.

NEW EQUIPMENT AND MATERIALS

"6-in-1" Padder

How deliveries of textile machines can be accelerated by production of parts that are interchangeable is a current research project of H. W. Butterworth & Sons Company, Philadelphia, Pa. The progress is reflected by new tenters now in production and by a horizontal pad that is literally six machines in one.

The straight automatic tenter, which operates at speeds in excess of 200 yards per minute, and the mercerizing tenter use the same drive shaft, reduction heads, bearing support rails, etc.

The new 3-roll horizontal padder is actually six machines under one streamlined cover. With minor variations in boxes the horizontal padder becomes an extracting mangle, a caustic impregnator, a universal padder, or a starch mangle. Or with a change of rolls, the machine becomes a 15-ton rayon calender. Rolls of any diameter can be used without new parts or major revisions.

Because these machines are expected to be versatile enough to run cotton, wool, and rayon as well as new fabrics, it is essential that the operator have complete control of all mechanical variations at all times. Therefore, all controls are built into the machines within easy reach of the operator. New meters and indicators afford positive and close control.

New Textile Detergent

Arnold, Hoffman & Co., Inc., Providence, R. I., has announced Ahcovon T, a new detergent recommended for general textile use in scouring, dyeing and finishing. It is reported to be efficient in hard water, acid and alkali.

Ahcovon T is described as a sulphonated petroleum derivative, possessing superior stability to lime and salts. It is light buff in color, in dry flake form, and relatively non-hygroscopic. A 1 per cent solution has a pH of 7.3-7.8.

Screen Table Adhesive

A new screen table adhesive, manufactured by National Adhesives, affiliate of National Starch Products, Inc., 270 Madison Ave., New York 16, N. Y., is reported to do away with the time-consuming method of nailing or pinning cloths or silk screens to printing tables, both in textile printing and silk screen printing processes.

The screen printing-table adhesive, known as Resyn Adhesive Q3613, holds unprinted cloth to the screen table during the printing operation. Adhesion is sufficient to prevent slippage of the material during printing, yet tests have shown that the cloth is readily removable after the printing has been completed, with no adhesive sticking to the printed cloth or in any way damaging it, according to the manufacturer.

Fifth Edition of "Textile Fibers" Ready

John Wiley & Sons, 440 Fourth Ave., New York 16, N. Y., have announced publication of the fifth edition of Matthews' *Textile Fibers*, edited by Herbert R. Mauersberger, textile consultant and technical editor of the "Rayon Textile Monthly."

Written originally by the late Dr. J. Merritt Matthews, earlier editions of *Textile Fibers* have been in use for nearly forty-three years. According to the publisher, the new edition is not simply a revision of the fourth; it is, in reality, an entirely new book. Under the editorship of Mr. Mauersberger, a technical advisory and review board of forty-seven leading textile technologists has collaborated to produce an up-to-date manual, which based in some measure on the earlier work of Dr. Matthews, differs greatly in arrangement and basic plan.

The new edition is reported to deal individually with the natural, regenerated natural, and synthetic fibers, treating exhaustively their physical, chemical, and microscopical properties. New material contained in the book includes entirely new chapters on fur fibers, bristles and down; regenerated cellulosic fibers; acetate rayon and cellulose esters; glass fibers and filaments; fiber identification methods; quantitative fiber analysis; fiber testing methods; sources and chemical properties of cellulose; and new synthetic fibers, filaments and yarns. Other prominent new features are a complete bibliography at the end of each chapter, and a comprehensive subject index.

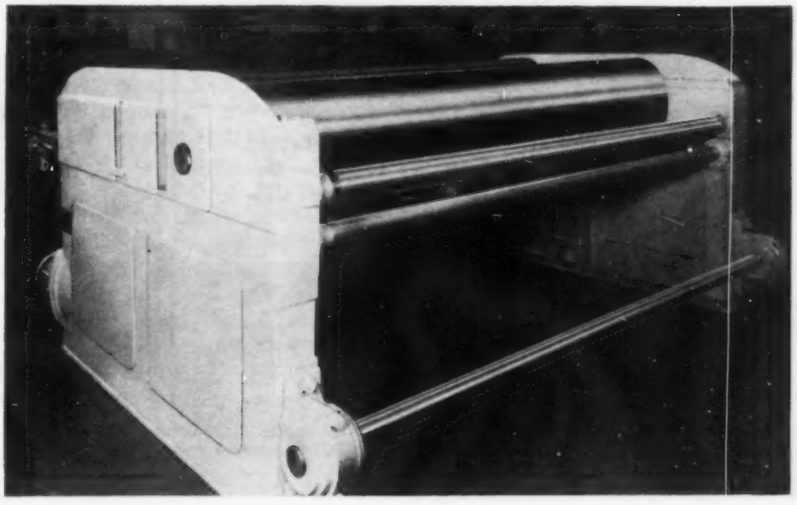
Protonized Process for Shrinkproofing Wool

The Protonized process is a process recently developed by Alrose Chemical Co., Providence, R. I., for imparting shrinkage-resistance to wool without impairing its hand, strength or resiliency.

It is described as a controlled wet-chlorination process based on the use of Alrochlor, a reagent which stabilizes the hypochlorite bath in such a manner that the chlorine is exhausted at a uniformly controlled rate directly onto the wool fibers. No chlorine is lost to the atmosphere, and chlorination is so uniform that there is no adverse effect on wool properties, whiteness, or uniformity of subsequent dyeing, according to the manufacturer.

It is reported that the process may

With minor variations in boxes, this horizontal padder by Butterworth becomes an extracting mangle, a caustic impregnator, a universal padder or a starch mangle. With a change of rolls, the machine becomes a rayon calendar.



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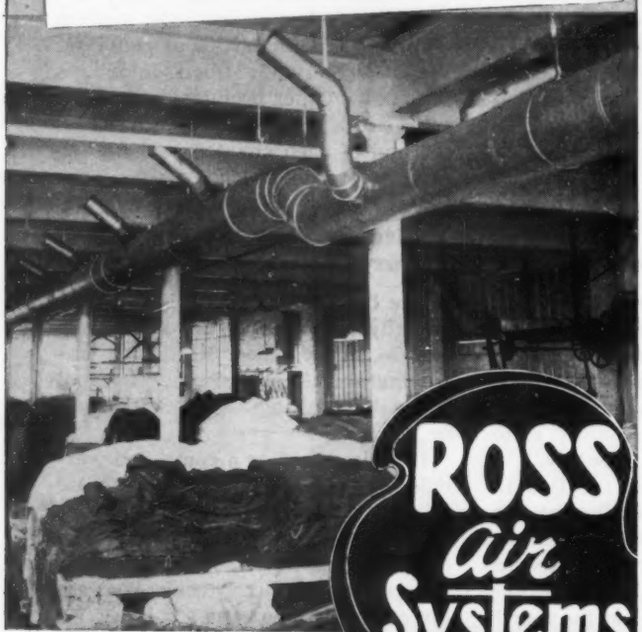

Section of ROSS Ceiling Heating and Ventilating System in mill of Trion Co., Trion, Ga.

The time tested success of the many ROSS Air Systems throughout the pulp and paper industry naturally led to their application in the Textile Industry. Leading textile manufacturers were quick to fully utilize the expert knowledge and broad experience possessed by ROSS engineers in the field of air handling. In two major industries with basic processing problems so much alike, ROSS methods can be relied upon for equally successful results.

Dye House Ventilation, Continuous Web Drying, Web Saturating and Coating, Infra-Red Drying — Gas and Electric — Oil and Gas Fired Air Heaters. Consult us on your problems.

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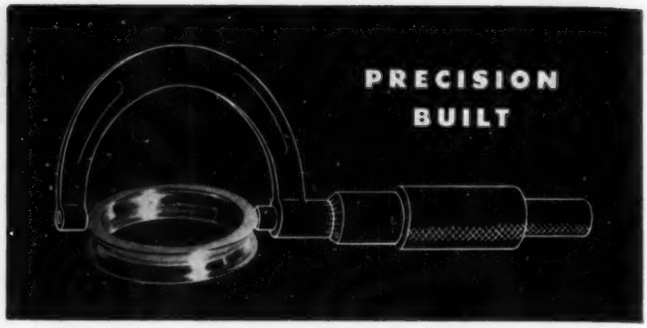
ROSS ENGINEERING OF CANADA, LIMITED — MONTREAL 19, P. Q.
CARRIER—ROSS ENGINEERING COMPANY, LIMITED, LONDON, ENGLAND



• Ragan Rings fit your holders exactly — micrometer-measured at the factory to be very sure of each one. There is a model for every type of spinning frame, in angle or straight web styles.

The traveller "floats" on the patented Angle Web. Patented hardening process and high-polish finish cuts breaking in time, makes them last longer, makes them "take-off" better. That's why you'll find Ragan Rings in leading mills around the world.

Ragan Ring Company

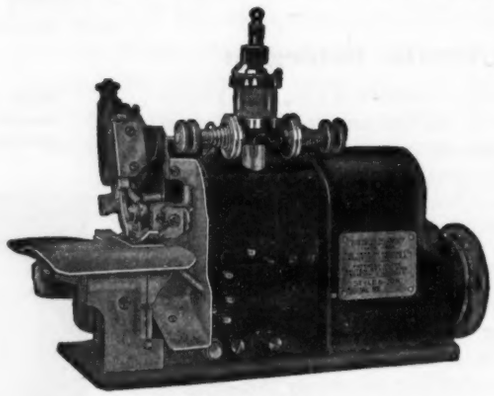
Atlanta, Georgia

Established 1838 — **MERROW** — **Incorporated 1894**

HIGH SPEED OVEREDGING, OVERSEAMING AND HEMMING MACHINES

FOR USE ON

Knitted and Woven Wear of All Kinds



QUALITY RESULTS
HIGH PRODUCTION
CONVENIENT HANDLING
MINIMUM TIME-OUT FOR ADJUSTMENT OR REPAIR
LOW UPKEEP COSTS

For Best Results Use a Machine Suitably Arranged for Your Work

THE MERROW MACHINE COMPANY

2805 LAUREL STREET — HARTFORD 6, CONN., U. S. A.

—*Distributors*—

HOLLISTER-MORELAND CO., P. O. BOX 721, SPARTANBURG, S. C.

be applied to 100 per cent wool or to mixtures of wool with other fibers such as cotton and rayon. Material is scoured before Protonizing, and is subsequently bleached or dyed as required. When selected dyes are used, it is said that the process can also be applied to dyed fabrics, ingrain hosiery, etc. It is necessary that any fulling operations must be carried out before application of the process.

The manufacturer of the process states that equipment for its application must be of acid-resistant and chlorine-resistant construction. Wood, special stainless steel, and nickel-clad steels are among the preferred materials. Iron must not come in contact with the liquor or with the wool at any point, since serious discoloration of the wool can result. Equipment containing monel metal or brass fittings may be used by incorporating a protective agent in the bath. For hosiery, the paddle-type dye machine has been found preferable.

The materials are first scoured, using the usual precautions to avoid damage to the wool. The wool is then treated in a bath containing hypochlorite and Alrochlor together with the required amounts of acid and formaldehyde. About 20 to 30 minutes is required for exhaustion of chlorine onto the wool. The material is then rinsed, antichlored with bisulfite, and neutralized.

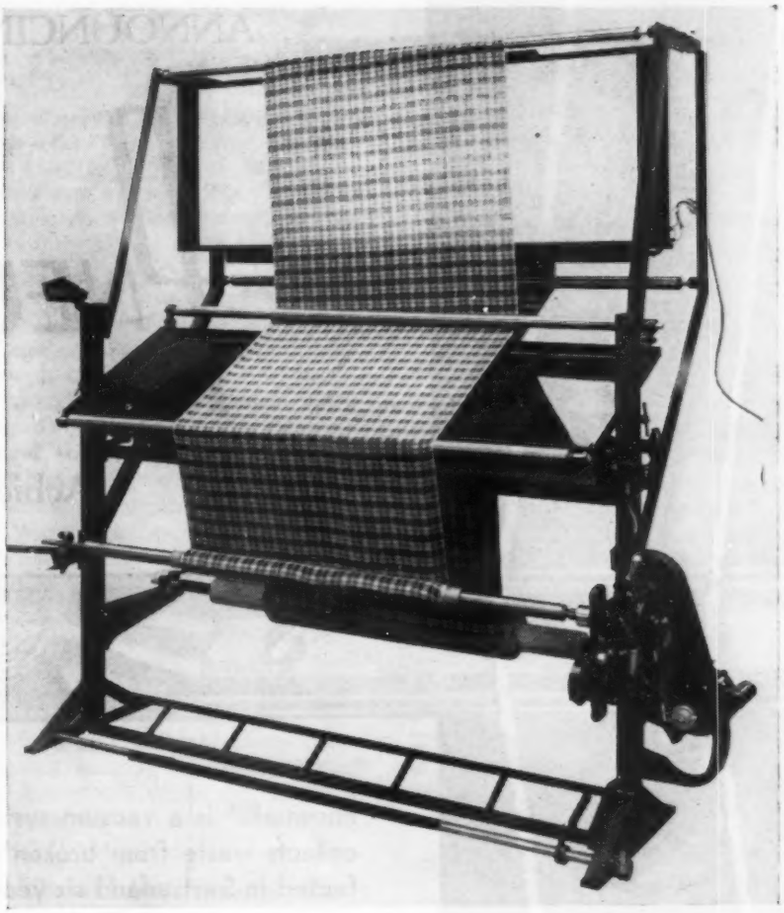
The goods are then bleached, dyed and scoured by the usual methods. The manufacturer cautions that care should be taken to avoid excessive stretch, particularly in drying or boarding of hosiery.

Instrument Controls Viscosity of Size

The Norcross Corporation, 50 Hunt St., Watertown 72, Mass., has recently developed a recording viscometer for manual or automatic control of viscosity in industrial plants.

According to the announcement, the instrument operates on a patented plunger principle where a piston is slowly raised by a motor cam mechanism, and then allowed to drop by gravity. A sample of the liquid to be measured is drawn in through orifices as the piston is raised and expelled when the piston is dropped. The time required for the piston to be dropped is a measure of the viscosity, this measurement being transmitted to the recorder by means of motors, relays, and other associated parts. The instrument records viscosity on a 24-hour chart which may be referred to at any time.

Typical applications of this instrument in the textile industry are reported to be (1) controlling the uniformity of sizing in slashing operations and (2) automatically controlling the viscosity of sizing materials used for sizing nylon in the hosiery industry.



Model GC30 cloth inspecting and measuring machine with vertical fluorescent lighting box, by Hermas.

Detergent for Soaping Prints

A modified alcohol sulfate detergent composed of 31% active ingredients has been announced by Alrose Chemical Co., 180 Mill St., Cranston, R. I. This new detergent will be marketed as Alrose 31.

The main application recommended for the new product is that of soaping prints. It is claimed that shade brightness and hand of fabric are improved, scumming is eliminated, and color bleeding is reduced.

As a scouring agent for raw wool, rayons, acetates, and cottons, the manufacturer states that Alrose 31 permits operation at lower temperatures, causes no lime soap deposits.

This detergent is also recommended as a levelling agent and penetrant with acid dyes, vats, developed sulfurs, and direct colors.

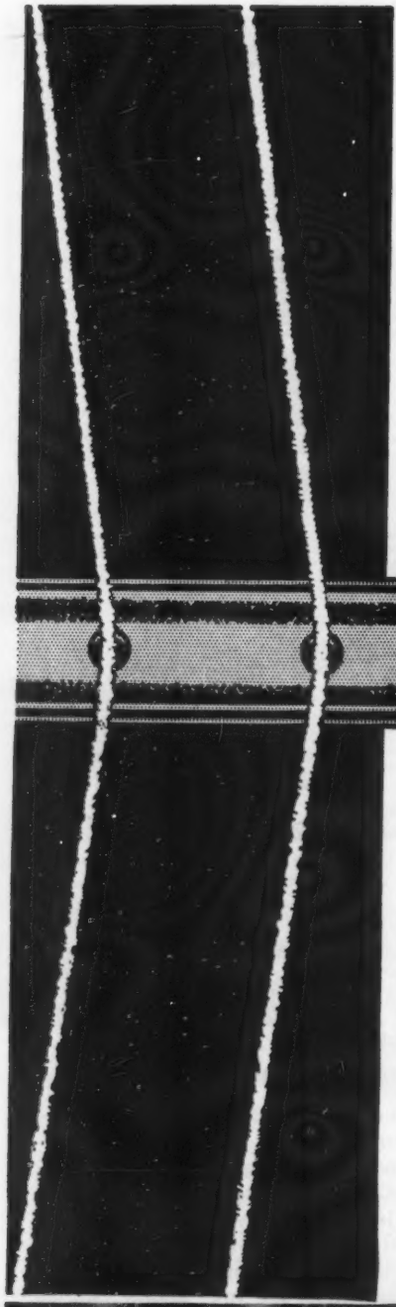
Lighting is Feature of Hermas Machine

The Hermas Machine Co., Hawthorne, N. J., has recently announced that its GC30 cloth inspecting and measuring machine is available with a vertical fluorescent lighting box to further enhance the efficiency of the inspector.

According to the manufacturer, daylight lamps behind the cloth make it possible to detect flaws that do not appear on the surface of the cloth, even with such fabrics as crepes.

The box is made from heavy sheet metal and has an opening in the front, 24 inches from top to bottom and machine size in width; that is, a 58-inch machine would have an opening in the box 58 inches wide which is ample for the maximum width cloth that is to be run on the machine. The box contains four 100-watt fluorescent tubes, running lengthwise.

The brackets are arranged so that the attachment can be applied to any inspecting machines existing at the present time, according to Hermas.



. . . . ANNOUNCING

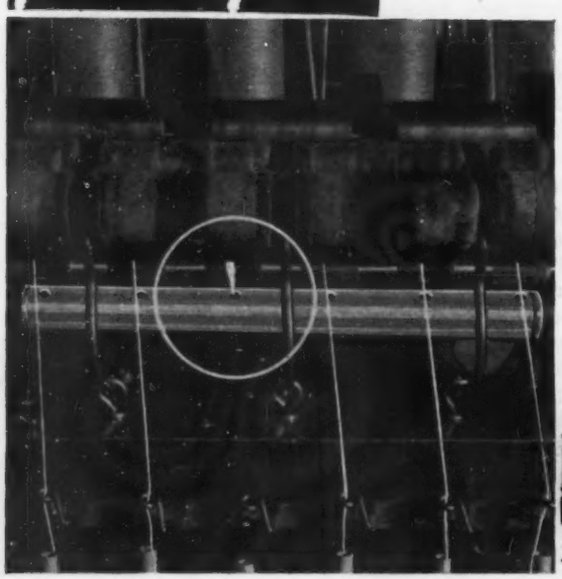
PNEUMAFIL*

. . . . The Outstanding Textile Achievement Since Long Draft

Pneumafil* is a vacuum system which automatically picks up and collects waste from broken ends on spinning frames. It was perfected in Switzerland six years ago. Today, several million spindles are so equipped. Their performance is giving daily proof that Pneumafil *improves yarn quality, increases production and lowers costs.* These overall advantages are obtained by

- Eliminating "wild" or "flying" ends
- Decreasing slubs, gouts, fly and end piecings
- Reducing ends down
- Reducing steel roll and top roll laps
- Eliminating stoppage to straighten out "balled-up" sides
- Decreasing the time of putting up an end
- Decreasing all cleaning in general—thread boards and roll beams in particular.

FULL INFORMATION ABOUT THE PNEUMAFIL SYSTEM WILL BE SENT ON REQUEST

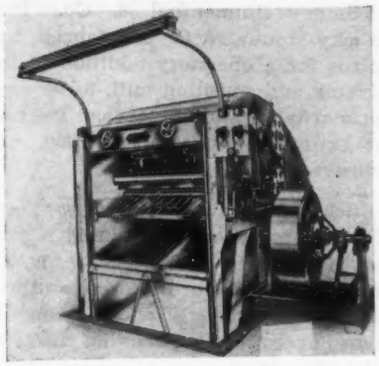


PNEUMAFIL

*Reg. Trade Mark

::Pneumafil Corporation::

2516 Wilkinson Boulevard Charlotte 6, N. C.



Pneumatically Controlled Fulling Mill

A new fulling mill said to be the first to be made entirely of stainless steel and the first with air controls, was announced recently by Rodney Hunt Machine Co., Orange, Mass.

According to the manufacturer, the tub, of stainless steel patented self-supporting construction, is easy to clean and requires no upkeep. The stainless steel top has no parts attached, thus is removable for easy servicing of the machine. A counter-weighted door at the front, hinged door at the back of the top, and the center partition are likewise of stainless steel.

The main roll pressure is reported to be maintained by pneumatic controls. Therefore it is possible to obtain the exact pressure desired by simply setting a gauge on the front of the machine.

Similarly, packing box pressure is regulated pneumatically through air cylinders mounted on the packing box clapper. An instrument panel at the front of the machine carries two gauges and operating levers by which the pressure on either box may be set and changed at will.

The throat guides are independently adjustable by a handwheel located above the front door of the machine and the ladder guide is adjustable for various numbers of strings.

Oakite Steam Cleaning Unit

An improved vapor steam cleaning unit for use in cleaning and paint-stripping a wide variety of industrial equipment and plant facilities is now available, according to a recent announcement by Oakite Products, Inc., 157 Thames St., New York 6, N. Y.

The unit, an enclosed-coil type, down-draft flame steam generator, delivers a hot vaporized spray in either wet or dry state under pressures up to 200 lbs, according to the manufacturer. Sufficient pressure is generated to operate two steam guns simultaneously. The improved model is said to incorporate simplified grouping of gauges and controls; redesigned piping system; and a compressed-air valve accessory for two-minute anti-freezing of the entire water-steam system. The fuel tank provides ample steam generation for an uninterrupted eight-hour, two-gun cleaning cycle.

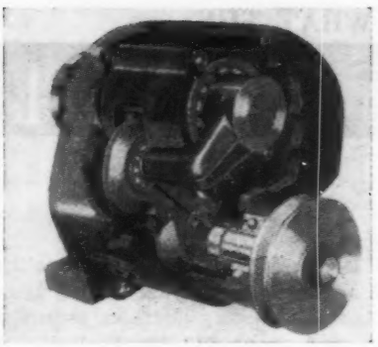
After initial throttle setting, unit operation is said to be completely automatic. Patented, down-draft flame in triple-insulated fire chamber provides rapid, economical steam generation (100 lbs. in one minute). Standard dual-chamber steam gun is furnished with the unit. The cleaning solution is aspirated through the gun from a separate solution tank, by-passing the steam coils and totally eliminating coil-clogging by the cleaning compound.

According to service records, the company reports, the new mobile unit may be used for steam-detergent cleaning of floors, ceilings, walls and a wide variety of textile machinery, including knitting machines, drying cylinders or cans, tenter chains, slasher drums, heater coils, fins in dryers, dyeing vats, etc.

Ball Bearing Comb Box

Henderson Foundry Division of Southern States Equipment Corporation, Hampton, Georgia, has announced the development of a ball bearing comb box for use on cotton carding machines.

The ball bearing comb box is designed to fit either left or right hand on any current make of carding machine. Comb stock adjustment or replacement is reported to be easily accomplished from the exterior of the box. There are no plates or covers to remove.



Ball bearing comb box for cards.

Of heavy duty, double-row ball bearing construction throughout, the comb box eliminates such comb box problems as friction, heat, chatter and wear, according to the manufacturer. It is claimed that wear is confined to the bearings which are standard.

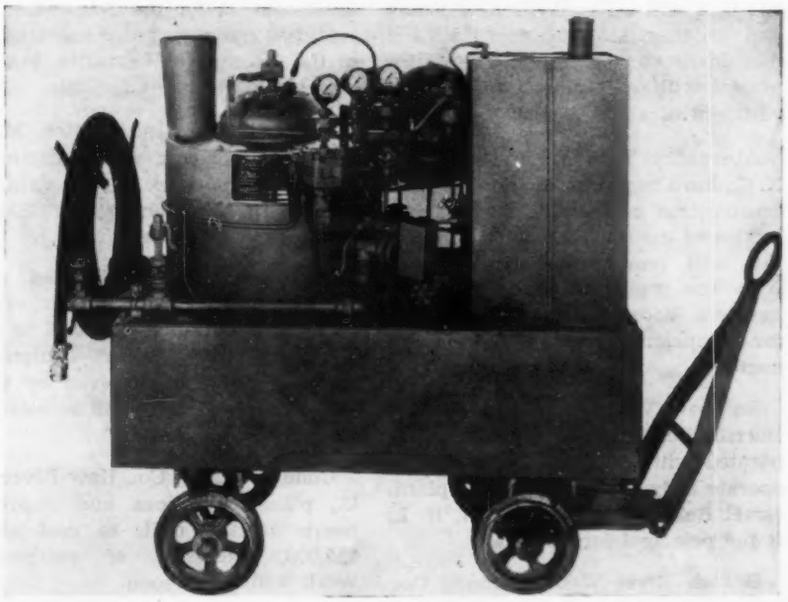
The comb box is factory lubricated and sealed, a process which tests have shown will hold up approximately two years.

Stop-Motion for Cards

Messrs. B. F. Underwood and J. C. Grant, of Easley, S. C., have been awarded a patent on a stop-motion for carding machines.

If a thick piece of lap or a foreign object of any appreciable thickness passes underneath the feed roll of a machine equipped with this device, this feed roll will be raised and will automatically move the doffer lever and stop the doffer and feed roll.

Improved Oakite portable steam cleaning unit.



WHAT THE TEXTILE MILLS ARE DOING

Dixie Cotton Products Co., Opelika, Ala., cotton and nylon fishing lines, plans a one-story addition, estimated to cost about $30,000, exclusive of equipment. CPA permission has been secured and work will begin soon.

Swift Mfg. Co., Columbus, Ga., colored cotton goods, upholstery fabrics, etc., has asked for bids on the general erection contract for a one-story addition to the picker building. No estimated cost has been announced.

Forsyth (Ga.) Cotton Mills, have begun erection of a one-story addition, to be equipped with about 4000 new spindles and auxiliary equipment.

D-J Skein Dyeing Corp., Brooklyn, N. Y., has taken out a building permit to make alterations and improvements in a two-story building in Brooklyn, to be used for expansion.

American Yarn & Processing Co., Mount Holly, N. C., is reported to have acquired controlling interest in the Efird Mfg. Co., Albemarle, N. C., carded and combed cotton yarns, and will be active in its management in the future. The mill is equipped with 68 combers and 246 cards.

Mooresville (N. C.) Cotton Mills will expend fund of about $300,000, in new equipment for their proposed mill in Mooresville. Approximately one-half will be used for new looms and another $150,000 for finishing machinery and facilities. The entire project will represent a reported investment of about $700,000.

Abernathy Yarn Mills, Statesville, N. C., have begun excavations for the construction of a basement under a section of the mill, and upon completion will remove twister machines from the ground floor to the new quarters. Vacated space will be used for expansion in the spinning department.

Rainbow Valley Dye Works, Inc., Burrillville, R. I., has been incorporated with a capital of $25,000 to operate a dyeing and finishing plant. Israel Rabinovitz, Woonsocket, R. I., is the principal incorporator.

Branch River Wool Combing Co., North Smithfield, R. I., has let contract for two one-story additions, including alterations in the present mill building which is reported to cost about $65,000.

Kendall Co. has asked bids on general contract for a two-story addition to the Slatersville Finishing Co., a division, for warehouse service. The cost is estimated to be over $70,000, with equipment.

Gold-Tex Fabrics Co., Rock Hill, S. C., rayon fabrics, has plans for a one-story addition to the mill which is reported to cost about $100,000, with equipment.

Avondale Mills, Sylacauga, Ala., are planning a series of 12 full-page advertisements to appear in the Saturday Evening Post, the subject of which is intended to spread the romance and reality of cotton and cotton goods across the nation.

Officials of Mandeville Mills, Carrollton, Ga., have announced major plans for the modernization of machinery throughout the mills. Another change will be the construction of an annex to the present dye plant.

The Axelrod interests have acquired a substantial interest in Wamsutta Mills by purchase of stock on the open market. Fisher Abramson, New Bedford, Mass., who is director of Wamsutta Mills and also serves as legal counsel for the Axelrod interests, has not stated the exact extent of the interest in Wamsutta, but declares that it is not for sale.

Sherman Mills, Inc., Boston, Mass., has been chartered with a capital of 1000 shares of stock, no par value, to manufacture cotton goods. Sidney Sherman is treasurer.

Hudson (Mass.) Worsted Co., combing mill for wool, mohair, rayon, plans an addition to the mill to cost about $334,000, with equipment. Project has been approved by CPA and erection contract will be awarded soon.

Cone Finishing Co., Haw River, N. C., plans extensions and improvements in the mill, to cost about $55,000, exclusive of equipment. Work will begin soon.

Sidney Blumenthal & Co., Inc., Rocky Mount, N. C., pile fabrics, has plans for a one-story addition to the dyeing and finishing mill, to be used primarily for storage service. The cost is estimated at about $41,000, exclusive of equipment.

Schneider Silk Mills, New York, N. Y., are reported planning a mill in the vicinity of Taylorville, N. C., for the manufacture of dress and underwear fabrics. The company is now operating a weaving mill at Holyoke, Mass.

The recently organized Seymour Woolen Co., Pawtucket, R. I., with a capital of 500 shares of stock, no par value, plans operation of a woolen mill, with Ernest Seymour, Pawtucket, as head.

Erection of the Chippewa Falls (Wis.) Woolen Mill Co., woolen piece goods, one-story addition will be carried out by day labor. The cost is reported to be over $100,000.

Susco Mills, Inc., formerly Ensign Cotton Mills, Forsyth, Ga., owned by Susquehanna Mills, Inc., has been sold to Brighton Mills, Inc., Shannon, Ga. Brighton Mills intends to use the production of Susco Mills, equipped with 11,000 ring spindles and 4,000 twister spindles, to supplement the production of its Shannon mill, and will not offer the products of the Forsyth plant for sale.

Pepperell Mfg. Co., Opelika, Ala., drills, twills, sheetings, is completing erection of a large addition to be used as a bleachery. It will represent a reported cost of approximately $3,000,000, including equipment.

Yarn Dyers, Inc., Los Angeles, Calif., have moved into a new building, and will increase operations for dyeing and finishing yarns.

Brunswick Worsted Mills, Inc., Moosup, Conn., men's wear, plans a one-story top addition to the mill. It is estimated to cost about $31,000, exclusive of equipment.

Joseph Bancroft & Sons Co., Rockford, Del., bleaching, printing, dyeing and finishing of cotton, rayon, etc., has plans maturing for a one-story addition to the mill, including improvements in the present building.

Bates Mfg. Co., Lewiston, Me., rayons, cotton bedspreads, etc., has arranged an expansion and improvement program at the mills during this year, to cost approximately $2,000,000. Work will include additional buildings and installation of equipment.

Announcing the consolidation of —

CLOVERLEAF MANUFACTURING COMPANY
HONESDALE, PA.

And

Freeland SPOOL & BOBBIN CORPORATION
HAZLETON, PA.

Into

CLOVERLEAF Freeland

HONESDALE, PA. **CORPORATION** **HAZLETON, PA.**

QUICKER DELIVERIES *through* **INCREASED PRODUCTION** *will result from streamlining and departmentalizing the combined facilities of our two plants. When fully integrated, the resulting increased capacity should bring about lower costs which in turn should reflect* **LOWER PRICES** *to you. The two companies have long been recognized as leaders in their field of the Textile Industry. By combining experience, workmanship, and methods which have for years produced outstanding spools, bobbins, and accessories, our* **HIGH QUALITY** *will naturally be maintained to meet the exacting requirements of fine yarn producers.*

Present orders on the books of each company will be allocated between our two plants to best advantage in order to bring about a speed-up in deliveries at the earliest possible date.

Executive Offices: **HAZLETON, PA.** *Sales Offices:* **HONESDALE, PA.**

TEN YEARS OF COTTON TEXTILES

Data assembled by The Association of Cotton Textile Merchants of New York from Bureau of the Census reports and information obtained through the courtesy of machinery manufacturers. Cloth production for the non-census or even years prior to 1941 has been estimated to correspond to spindle hour activity during the preceding census years. Cloth production for 1941 is WPB estimate of June 29, 1942 which is the basis used for subsequent calculations, with appropriate modifications.

	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947
EQUIPMENT											
Spindles in place at beginning of year	27,573,770	26,704,476	25,994,676	24,940,204	24,504,490	24,157,306	23,757,844	23,342,922	23,105,942	23,806,392*	23,927,706*
Increase or decrease from preceding year	— 1,678,574	— 869,294	— 709,800	—1,054,472	— 435,714	—347,184	—399,462	— 414,922	— 236,980	700,450	121,314
New installation, additions and replacements	772,724	178,280	349,416	414,974	449,848	210,456	7,752	82,736	323,688	323,056	
OPERATION											
Spindles active at any time during year ending July 31st	25,419,110	24,774,004	23,731,050	23,585,938	23,389,454	23,607,508	23,429,252	23,018,828	22,674,852	22,386,512†	
Spindles idle during same period	2,154,660	1,930,472	2,263,626	1,354,266	1,115,036	549,798	328,592	324,094	431,090	1,219,880	
Average number of active spindles based on twelve monthly reports	24,079,455	22,039,179	22,317,552	22,410,966	22,955,205	23,051,400	22,744,106	22,332,080	22,018,529	21,933,578†	
Intermittent spindles (being the difference between average active spindles and those active at some time during year)	1,339,655	2,734,825	1,413,498	1,174,972	434,249	556,108	685,146	686,748	656,323	452,934	
Percentage relation of average active spindles to spindles in place	87.33%	82.53%	85.85%	89.86%	93.68%	95.42%	95.73%	95.67%	95.29%	92.13%	
Spindle hours run	95,409,267,000	76,252,297,000	92,570,738,000	98,279,419,000	121,968,582,000	133,536,052,000	125,413,065,000	114,984,489,000	107,325,501,000	109,368,009,000	
Hours run per average active spindle	3,962	3,460	4,148	4,383	5,313	5,793	5,514	5,149	4,874	4,986	
MARKET											
Production in square yards	9,445,914,000	7,548,977,000	9,044,979,000	9,601,899,000	11,327,903,000	12,204,611,000	11,569,224,000	10,572,421,000	9,779,238,000	10,171,225,000	
Exports in square yards	236,251,000	319,634,000	367,466,000	357,925,000	586,739,000	447,850,000	538,462,000	638,096,000	672,789,000	774,945,000	
Imports in square yards	147,320,000	58,282,000	111,817,000	84,344,000	61,148,000	17,643,000	19,764,000	11,188,000	79,879,000	44,514,000	
Available for domestic consumption	9,356,983,000	7,287,625,000	8,789,330,000	9,328,318,000	10,802,312,000	11,774,404,000	11,050,526,000	9,945,513,000	9,186,328,000	9,440,794,000	
Population at July 1st	129,257,000	130,215,000	131,200,000	131,970,000	133,203,000	134,665,000	136,497,000	138,083,000	139,585,000	141,229,000	
Available for per capita consumption in square yards	72.39	55.97	67.00	70.68	81.10	87.43	80.96	72.02	65.81	66.85	

* Includes cotton system spindles on other fibers.
† Partly estimated. Consuming cotton only.

Industrial Engineering Principles

(*Continued from page* 79)

tions. Secondly, experienced mill men in this group cooperate with the mill supervision and aid them in the reduction of waste by discerning where waste is excessive, ferreting out the reasons thereof and devising a solution.

For a small plant many of these functions are combined.

Extensive use of the principles and methods herein described in many textile mills during the past twenty years, have resulted in lower costs, higher earnings, smoother operations and much improved management and labor relations.

1. Decreased cost of manufactured product due to proper base rates, proper measurement, and work load assignments brought about by job evaluation and competent time study.
2. Increased earnings on the part of the operator due to proper incentive opportunity and appropriate reward for increased effort and production.
3. Better supervision due to:
   (a) Necessary maintenance of standard conditions of materials and machinery.
   (b) Competitive rivalry between supervisors of various departments for better productive effectiveness, as measured by a common yard stick.
   (c) Actual record of supervisor's performance for use in the selection for promotion or elimination.
   (d) Removal of responsibility from manufacturing supervision for checking, payroll, timekeeping and rate setting, thereby enabling effective utilization of the supervisor's time for production, quality and personnel problems.
4. Fair settlement of workload controversies.
   (a) Factual data on job in question through time studies and job specifications.
   (b) Performance record established by unprejudiced labor measurement, resulting in proper recognition of the value of each employee.
5. Detailed time studies of end-breakage and loom stop checks reveal specifically such things as the following:
   (a) Spinning end-break checks show too slow or too fast front roll speeds, advantages of certain roll coverings over other roll coverings, improved conditions affecting running conditions, mechanical deficiencies, etc.
   (b) Loom stop checks disclose improper warp preparation, yarn deficiencies, improper doffing of filling, mechanical defects attributed to poor loom fixing, advantage of certain type heddles over other types, proper number of harness for particular construction, etc.
   (c) Time studies reveal improper practices, wasted labor, improper methods, wrong tools, etc., all items that supervision does not have the time or training to disclose and correct.

better WEAVING through research

Scott Single-Strand Tester operating in a Staley Laboratory where a temperature of 73° F., with a relative humidity of 65%, is constantly maintained.

•

Staley Laboratories are equipped to completely test the weavability of warp yarns... To analyze and recommend sizing formulas for your mill requirements. This is only a portion of the research service that Staley's offer to textile men. Our skilled technicians and modern laboratories are ready to help you with any sizing problem.... A policy of cooperation and service that prompts mill owners, managers and superintendents to say they like to do business with Staley's.

Our complete line of Textile Starches has been laboratory developed to meet all requirements of weavability and weight, and is under exacting Control Laboratory supervision throughout the entire processing operation. As a result, Staley Starches can be depended upon for consistent, high quality and performance from shipment after shipment.

Write, wire or telephone for detailed information.

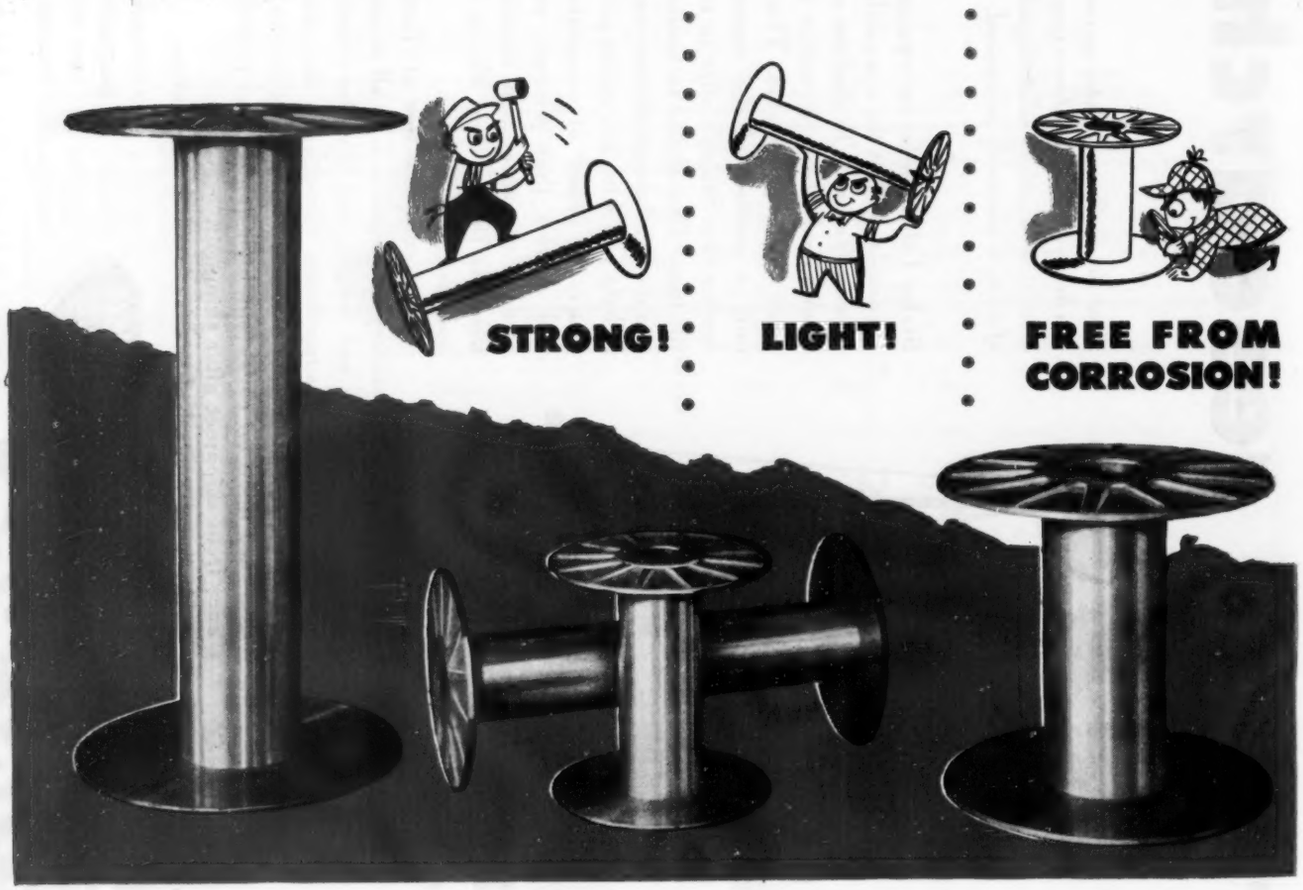
STALEY STARCHES

Staley's CORN AND SOY BEAN PRODUCTS

ATLANTA • SPARTANBURG
DALLAS • PHILADELPHIA
CHICAGO • NEW YORK
BOSTON • SAN FRANCISCO

A. E. STALEY MFG. COMPANY

DECATUR, ILLINOIS



Only aluminum fills all 3 requirements . . .

EVEN AT HIGHEST WARPING SPEEDS Aluminum Tricot Beams run true and vibrationless . . . stop and start quickly, smoothly. That's because aluminum beams are *precision-built* and *precision-balanced*. And their extremely *lightweight* means low shipping costs . . . easier, faster handling.

You can fill an aluminum tricot beam with any kind of yarn—even synthetics of finest deniers. The inherent *strength* and *stiffness* of aluminum reduces the elastic deflection of flanges to the vanishing point.

Maintenance of aluminum tricot beams is simple . . . the smooth, bright finish of the aluminum machined flanges keeps its polish indefinitely . . . stays free from the corrosion products that roughen the surface and snag yarn.

You can get Aluminum Tricot Warp Beams now from several responsible manufacturers. We'll gladly send you their names upon request. Aluminum Warp Beams, designed in co-operation with Reynolds Textile Engineers and built of Reynolds Aluminum, completely fulfil the exacting requirements of the textile industry.

For answers to any of your questions on aluminum tricot beams, section beams, as well as on spools and bobbins of all sizes and types, please write Reynolds Metals Company, Textile Sales Division, 2567 South Third Street, Louisville 1, Kentucky.

Other applications where strong, light, rustproof Reynolds Aluminum does a better job for the textile industry . . . and for you!

- Ring Rails
- Needle Bars
- Doffing Trucks
- Separator Blades
- Knitting Machines
- Stocking Forms
- Picker Sticks, Shuttles
- Spinning and Roving Frames
- Cloth Rolls and Stock Shells
- Slasher hoods, exhaust equipment, ventilator ducts.

REYNOLDS METALS

REYNOLDS ALUMINUM

The Great New Source of

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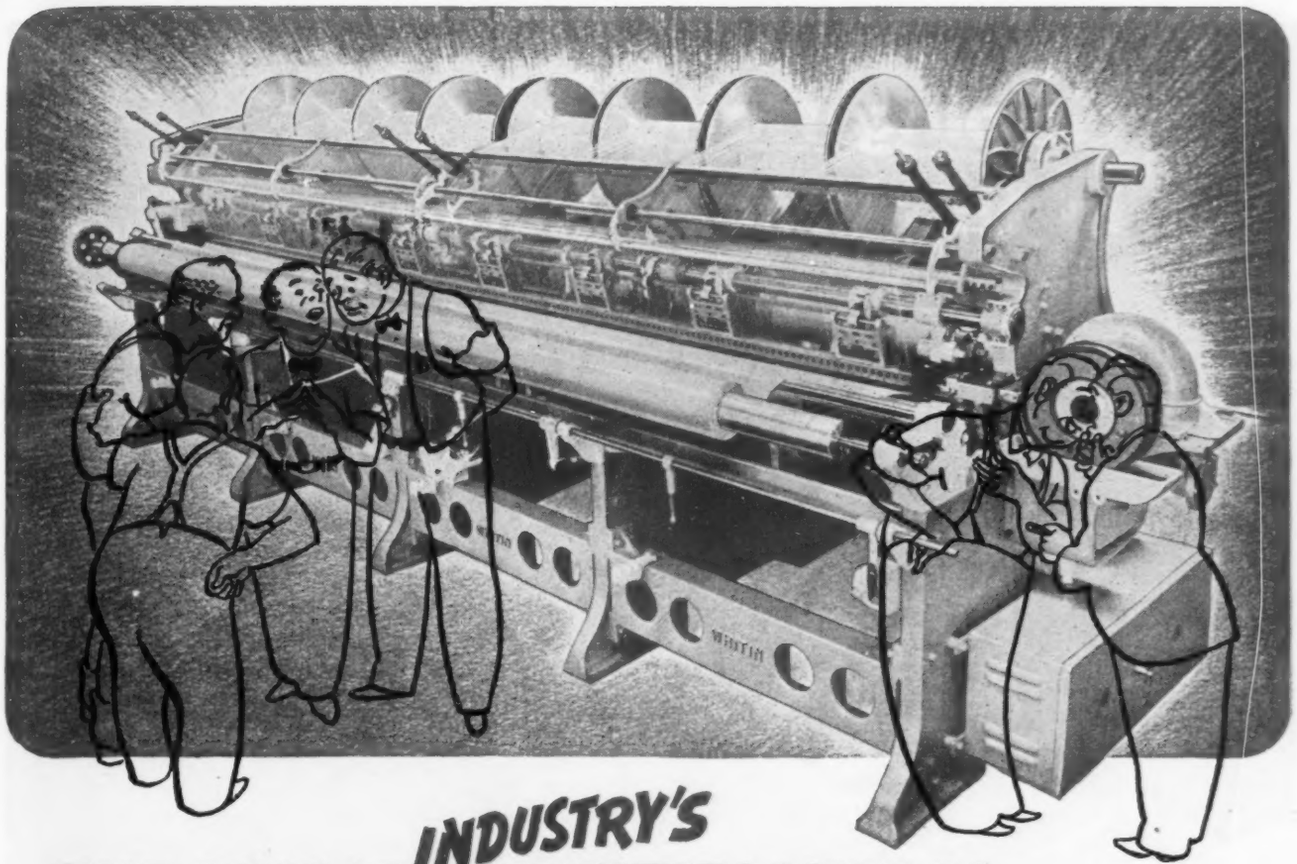


THE WHOLE ~~TOWN'S~~ INDUSTRY'S TALKING!

About the NEW Whitin Model "C" High-Speed Warp Knitting Machine. It's Tomorrow's Tricot Machine in production TODAY!

No wonder they're talking . . . there's plenty to talk about! Being "first" is a tradition at Whitin. Manufacturers of the first American-built high speed warp knitting machine, Whitin leads again with its revolutionary Model "C", featuring these important "firsts" . . .

"BUTTED" NEEDLES . . . first on high-speed tricot. Proved by a three year mill test, the "butted" needle bar stays in gauge under all operating conditions, saves leading operations — costs less to operate or replace. Optional equipment on the new Model "C".

ELECTRICAL CONTROL . . . eliminates antiquated handwheels, reduces stop marks in the fabric and permits the knitting cycle to be stopped, started, run slowly or advanced through small increments by means of an electrical inching unit.

IMPROVED GUIDE BAR ASSEMBLY . . . allows bars to be swung into an easily accessible position for threading without being removed from the machine, thus preventing damage to bar and guides.

Designed to knit up to 500 courses per minute and featuring automatic pressure lubrication to all bearings, except cam shaft and followers, the Whitin Model "C" uses spools up to 21" diameter on a system of locked yarn beams that become a single rigid unit in knitting position. This combats vibration, and together with a simplified take up unit, provides even tension that results in clean, streakless production of quality fabrics, both natural and synthetic. In no other machine, in production today, is to be found such an array of long-sought knitting features. Be first to get the full story on this amazing Model "C". Write TODAY!

Whitin MACHINE WORKS

WHITINSVILLE, MASSACHUSETTS
CHARLOTTE, N. C. • ATLANTA, GA.

Helping Hand in the Weave Room

Hunt Spreaders Stabilize Looms . . . Increase Output

Hunt Spreaders have given new production impetus to lazy looms in hundreds of textile mills from Maine to Texas. These mills are exceeding production goals, making better quality fabrics, and lowering per-yard costs with the help of Hunt Spreaders. Check the advantages of equipping your looms with patented Hunt Spreaders. . . . Write today for detailed information.

Write for the new Mountain City Catalog.

Hunt SPREADERS

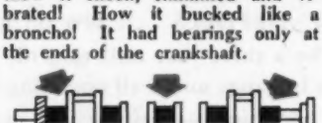
PRODUCT OF

MOUNTAIN CITY FOUNDRY & MACHINE CO.

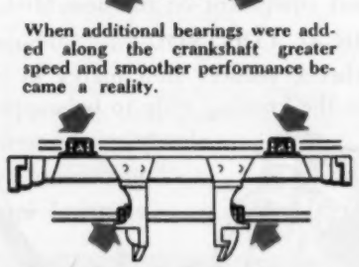
200 ACADEMY ST. GREENVILLE, S. C.

Remember the Early Auto?

How it shook, shimmied and vibrated! How it bucked like a broncho! It had bearings only at the ends of the crankshaft.



When additional bearings were added along the crankshaft greater speed and smoother performance became a reality.



Hunt Spreaders apply this same principle to looms. By adding 4 extra bearings they stabilize crankshafts and camshafts. They brace loom sides, reduce vibration, and permit greater speeds. Results: smoother operation, fewer breakdowns, and more cloth output per loom.

The Spiral Staircase

(*Continued from page 73*)

dustry by its owners, when they have anything to plow back. Furthermore, some of the plaints of the labor union crowd about fabulous earnings seem rather overdone when earnings are analyzed and spread over an average period of years.

Much capital has been made of the so-called fantastic profits of the textile industry during the past few years. It has been pointed out that the cotton textile industry has made 400 or 500 per cent greater earnings in 1946 than in some previous year. Perhaps in the previous year it made less than one per cent profit on its investment, so that a 500 per cent increase would still not leave it in any too opulent a condition. Many of these enormous increases of earnings when figured on a percentage basis are cut to quite modest proportions when the actual earnings are considered.

The textile industry has of course done very well for itself these past few years, and it is indeed fortunate for its many employees that it has, because for many years the textile industry was on the brink of starving and many of its plants had become quite obsolete. Substantial earnings on the part of textile corporations will permit substantial expenditures for new machinery to provide jobs at good wages. Good wages can not be paid for running worn out, broken down equipment.

Our labor leaders would do well to remember that labor gets it all anyway, sooner or later. All profits are ultimately spent for labor, and it is most important to labor that its employers be permitted to provide the tools for labor to work with.

Modern Yarn Dyeing

(*Continued from page 86*)

thetic products unaffected by acidity or lime, along with such phosphates which sequester heavy metal salts, are much more efficient and should be considered.

In heavy shades and in those combinations where fastness to rubbing is a problem or a consideration, special means to remove the loose surface dye must be used. Very strong soap solutions (6-10 lbs. per 100 gals.) should be used for the second soaping; or for the best results, steeping overnight in such a solution and then soaping off the very dirty liquor next morning. Allowance for shade loss by over-dyeing the depth must be made when such drastic treatment is given.

Yarn Preparation

Before dyeing, the yarn may be boiled off with soda ash or even caustic soda, along with some detergent, to get soft, absorbent fibers, it is then either dried for future use or merely extracted before naphtholating.

Where brightness or clearness is desired, the yarn should first be bleached. Where the naphthol combination will stand chlorine bleaching, it may be done after dyeing or in the woven piece with other colors or with natural cotton yarn.

Skeins, if hand-impregnated or hand-wrung, should be treated as uniformly as possible to get even results; machines combined with extractors give better work if care against air fading is taken. Warps can be handled in the chain form, continuously, if an extra good squeeze is given between the naphthol and coupling solutions; in case of beam dyeing, the naphthol may be dried on. Time for coupling must be allowed with some combinations such as browns, and this may be done by skying the warps before rinsing.

In package dyeing, precipitates which would clog the yarn and impede circulation must be avoided by using dispersing agents, and aftertreatments must be given special consideration.

For thread yarn, one company gives the usual soaping, dries and rewinds the packages, and then gives another soaping. The exposure of different yarn surfaces and the double soapings give high fastness to rubbing which is required.

Fastness of Naphthols

Naphthol dyeings are very fast to washing, soaping, and boiling soda ash. Some combinations will actually stand kier boiling with caustic, where the little bleeding that does occur does not stain whites, making it possible to use them for towelings or shirtings, where a kier boil may precede the chemic bleach. The fastness to light runs from good to very good, though some which have a high rating in full shades leave much to be desired in weaker dyeings. Fastness to acids, acid cross-dyeing, perspiration, and generally chlorine are excellent, but only a few combinations will stand peroxide bleaching fairly well. Others have limitations; some sublime or become permanently changed by a hot ironing; most will bleed during the Trubenizing process; a few stain dry cleaning solutions. All such special points should be investigated.

The best combinations have excellent all-round fastness and give bright shades at a cost hardly obtainable any other way; for example, full brilliant shades of reds of vat fastness.

Here's the answer to your soaring sizing costs...

THE NEW HOUGHTO-SIZE CW

Gives you better sizing at lower slashing cost!

Mill men who used to worry about weave room efficiency have another worry these days to add to their sizing problems—that of the increasing costs of sizing warps.

Everything costs more—except Houghto-Size CW, Houghton's answer to both higher costs and quality sizing. This new size softener, developed to meet raw material shortages, has proved superior all the way through the mill.

It not only provides lower kettle cost; it protects warps so they weave better, and thus increases weave room efficiency—as much as 1½% in some mills, which in itself is vitally important. For folder and prices on Houghto-Size CW for immediate delivery, write—

E. F. HOUGHTON & CO.

303 W. Lehigh Ave., Phila. 33, Pa.

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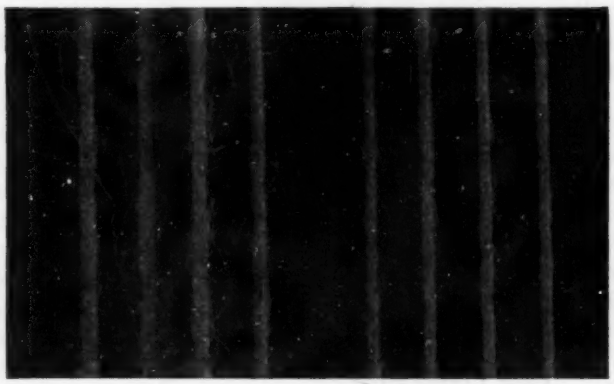


Unsized warps at left; Houghto-sized warps in right-hand group. Note how smooth and slick the sized warps look in this unretouched photo, made in Houghton Laboratories as a part of the Warp Size Check-up Test—a service rendered to mills on request.

AN

EXECUTIVE VIEWS

THE NEWS IN TEXTILES

The Fifth Horseman

Throughout the major portion of Europe the Four Horsemen of the Apocalypse have been riding. In the bomb ravaged cities of Belgium, Germany, France, and Holland are heard the hoof-beats of Famine, Pestilence, War, and Death. But the sounds of those hoof-beats are diminishing. Railroads are running again, and smoke is beginning to rise from the stacks of once-ravaged factories. All the world rejoices that the wounds of war are healing.

But in the American textile industry a fifth horseman is about to mount to the saddle. Through the haze of smoke rising from the textile factories of England, India, Germany, and Japan we see that his name is Foreign Competition. He has not ridden for a long time, but now he is riding again. How fast he rides will have an important bearing upon the fates of all of those who earn their livings within the sounds of the loom or the spinning frame.

Back in 1937, just 10 years ago, the United States imported 147,000,000 square yards of cotton textiles. By the end of the war this had dropped to a bare trickle of that figure, and during that decade many of us forgot what it was like to operate in a buyers' market. World-wide demand for textiles was so strong that buyers were beating a path to the gate of a textile mill. There are indications that the trend is changing, and that the spectre of foreign competition will take on increasing significance in the months ahead.

For example, the British government has launched a program to expand that nation's prewar export trade by 75 per cent, and it plans to subsidize a modernization of the textile industry to see that it is able to stand the pace. Our own U. S. Department of Agriculture advises that under certain conditions the British government will "reimburse" cotton mills to the extent of 25 per cent of the cost of replacing worn-out spinning machinery. It is noted also that the British are urging consolidations of plants, insisting upon resulting units of not less than 500,000 spindles. And the U. S. Department of Agriculture seems to view the British situation with glee, indicating that all this is going to result in the importation of more cotton from the United States.

News dispatches from India in recent months have indicated that 125 new cotton mills are planned there, which will add an additional 2,700,000 spindles to the Indian textile industry. That is almost as many *new* spindles as are now active in the state of Georgia, and it will give India a total of around 10,800,000 spindles, or more spindles than are now active in the two Carolinas.

Even in the defeated Axis countries of Japan and Germany the spindles are beginning to hum. The recent Textile Commission to Japan, of which Harry L. Bailey, formerly chairman of the board of Wellington-Sears Company, was a member, reported to the War Department that it expected Japan to have 2,991,000 spindles capable of operation by January, 1947, and predicted a cloth output for that month of 46,942,000 square yards. If continued at the January rate, that nation's 1947 production figure would run to about 360,000,000 square yards of cotton textiles, which, produced at the prevailing Japanese textile wage rate, can make a sizable dent if permitted to enter the world market.

In Germany, it appears that textiles may also show considerable activity. It appears that in the United States the people who are making the decisions as to what should be done with this former enemy nation are coming to the conclusion that the textile industry should be built up in Germany to take the place of the heavy industries that were there before the B-17's passed over. Their reasoning seems to be that Germany must have some type of industry to sustain her economy, and that to permit the re-establishment of the heavy industries would be too much of a risk in view of their essentiality in the event of war.

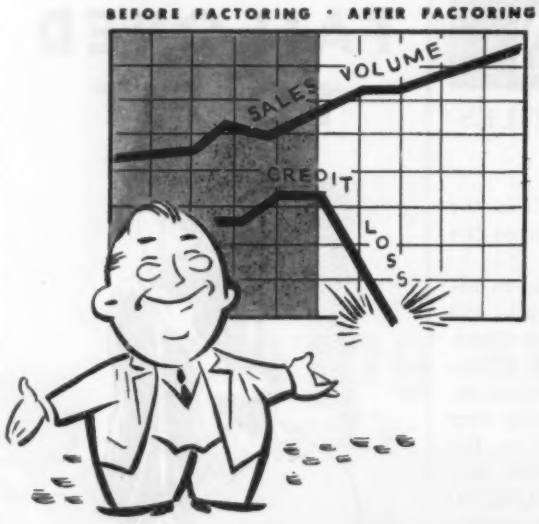
And so where does all this leave the American textile industry? It leaves it, of course, right behind the well-known eight-ball. In the foreign countries of the world, wages have always been far lower than in America. That goes for the wages of the textile worker and the wages of the worker in the cotton fields. Al-

TAILORED TO FIT

No one type of insurance policy can fulfill the protection needs of every income earner — or every group of workers. Therefore, each Group Insurance program underwritten by the Provident is based on a preliminary study and is *tailored-to-fit* the requirements of the firm and its employees.

Provident Group Insurance plans, now protecting nearly two million employees and dependents, can be written to provide life, accident and sickness, and hospital-surgical insurance—at a cost every employee can afford. The hospital-surgical benefits can even be extended to cover dependent members of the employees' families.

Full information is yours for the asking.



FACTORING *Ends* CREDIT WORRIES

When you use Trust Company of Georgia Factoring Service, your credit and collection worries are completely eliminated. A textile manufacturer who last year did a volume of $175,000,000 said: "Why should I devote my time to credit and collection worries when factoring costs so little?" Savings on credit and bookkeeping expense pay the cost of factoring.

Let us tell you more about this modern service that is helping hundreds of Southern firms to make better progress and profits.

FACTORING DIVISION

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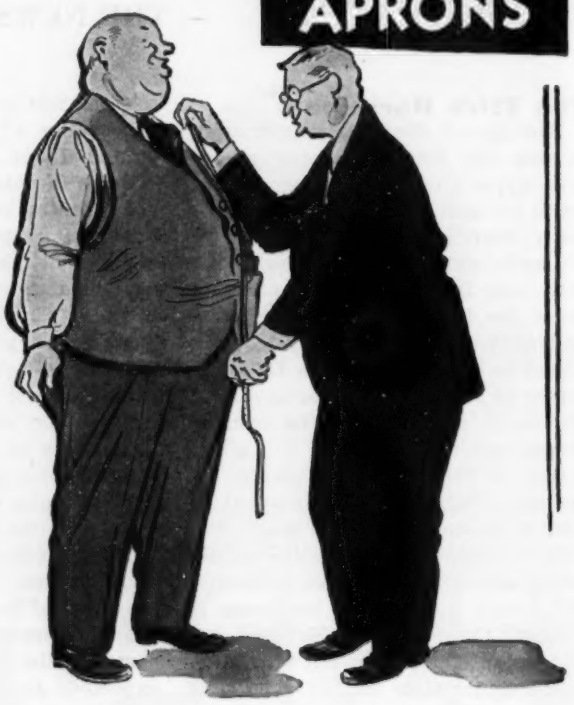
Next door to every mill in the South

KENTEX PRECISION APRONS



You're SURE of a good fit

Custom-built aprons, like tailor-made clothes, *fit* better—and sure fitting aprons facilitate maximum yarn production.

KENTEX Aprons are custom-built to fit your *exact* requirements. Made of the finest quality barktanned or chrome leather—by skilled craftsmen on precision machinery—they are micrometer gauged for thickness, width, length and circumference. That's why we can guarantee a *sure* fit.

KENTEX Aprons can be made to any specification, on short notice. Write us for free samples and prices.

TEXTILE APRON COMPANY

EAST POINT, GEORGIA

though many people do not realize it, this nation grows only about one-half the world's supply of raw cotton, and so this question naturally arises:

What is going to happen when Indian mills, paying ridiculously low wages, start processing quantities of raw cotton grown in China and produced also at ridiculously low wages?

Only time will tell, but you may be sure that the fifth horseman is riding again.

For the Record

If those who argue for an increase in wages due to an increase in the cost of living are not careful they will find themselves on very shaky ground. The ground will be shaky, that is, if they are consistent in their views that wages should be geared to the cost of living, whether the index rises or falls.

Preliminary figures of the U. S. Department of Labor indicate that in the month of January, 1947, the cost of living turned slightly downward for the first time in many months. It is true that for the last several years there has been a slight downward trend just after the first of the year, but there are other indications that this may represent more than a temporary leveling off.

It may be well, therefore, to have a summing up at this point and, just for the record, see what has happened in regard to wages and the cost of living. Let's consider January, 1947, as compared with the yearly average for 1940, the last year of peace before America entered World War II.

In 1940, according to the U. S. Bureau of Labor Statistics, the average cotton goods worker was earning 41.2 cents per hour. By January, 1947, that figure had risen to 91.4 cents. This figure represents an increase of 122 per cent.

Now what was happening to the cost of living during the same period? The figures of the U. S. Bureau of Labor Statistics give the answer. The Bureau's index stood at 100.2 for the year 1940. In January, 1947, it had risen to 153.1, which is an increase of 53 per cent.

And that, for the record, is the story. Average hourly earnings in the U. S. cotton goods industry rose 122 per cent from 1940 to January, 1947, and during the same period the cost of living increased only 53 per cent. These figures, taken from Federal sources, do not distort, nor do they twist the actual meaning. No especially favorable month has been

Here are the reasons why Schieren leather belting improves the profit-making ability of your machines.

1 BETTER PULLEY GRIP—GREATER MACHINE OUTPUT
The uniform, clean, full grain surface of Schieren belt assures maximum coefficient of friction—delivers more RPM.

2 GREATER FLEXIBILITY—IMPROVED HIGH SPEED PERFORMANCE
Clean, free-moving internal fiber structure of this belt gives it superior pliability.

3 LESS STRETCH—LESS MAINTENANCE
Freedom from uncombined tanning materials lets internal fibers draw down nearer parallel during the currying operations—reducing stretch.

4 GREATER TENSILE STRENGTH—GREATER OVERLOAD CAPACITY
Tests show that Schieren belting has an average tensile strength of over 6000 lbs. per square inch of cross section.

5 STRONGER LAPS AND PLIES
Peel tests prove that Schieren belt has an average adhesive strength of over 25 lbs. per inch of width —more than three times the minimum U. S. Government requirements.

6 LONGER BELT LIFE—LOWER COST PER FOOT PER YEAR
Schieren's use of the best hide sections plus careful and thorough tanning and experienced workmanship assure longer productive service.

Write for information on belting, leather packings or leather specialties of all types.

SC-9

Here's a combination that has stepped up production from many types of machines. This is the modern short center drive with Schieren belt on the pulley.

CHAS. A. SCHIEREN COMPANY
39 Ferry Street, New York 7, N. Y.
60 Front Street, W., Toronto, Ont.
Tanners and Manufacturers Since 1868

selected. Go back to 1939 and the result is even more amazing. The truth, of course, is that wages in cotton manufacturing have far out-distanced the cost of living, and it must be borne in mind that to the wage figures may now be added the recent sizable increases granted both in northern mills and in southern mills.

We are not saying that it is either "good" or "bad" that textile wages have thus out-distanced the cost of living. We are merely reporting that fact for the record.

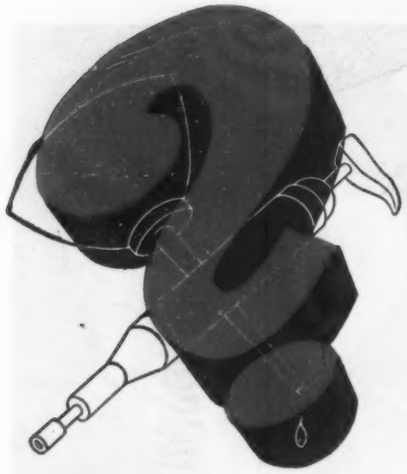
S. C. Had Mill as Early as R. I.

As a result of a friendly dispute between Pawtucket, R. I. and Beverly, Mass., over the matter of legitimate claim to America's first cotton mill, the fact has been brought out by Cotton Mills Information Service that Stateburg, S. C., had a cotton mill as early as Slater's famous mill in Pawtucket. However, it is stated that since the mill only lasted a few years, South Carolina never has contested Pawtucket's claim to the first successful mill based on modern principles.

With reference to Pawtucket's claim to "the first mill based on modern principles," it is generally recognized that Samuel Slater's mill, built in 1790, was the first successful mill to use waterpower and the Arkwright frame. However, there was a mill established in Beverly, Mass., in 1787 which was burned in 1828, but it was powered by a team of mules driven around a turnstile.

Regarding the South Carolina mill, The American Museum, VIII, Appendix IV, of July 1, 1790, says: "A gentleman of great mechanical knowledge and instructed in most branches of cotton manufacture in Europe, has already fixed and completed a mill now at work on the high mills of the Santee (River) near Stateburg (South Carolina)."

The mill was powered by water, the account said, and equipped with carding and spinning machines with 84 spindles "and several other useful implements for manufacturing every necessary article in cotton." Other accounts say the mill produced "Manchester cotton stuffs."



GREASE OR OIL

The question of selection of the proper type and consistency of lubricants need offer no problem. LUBRIPLATE Lubricants are available from the lightest fluids to the heaviest grease types. All reduce friction and wear, protect against rust and corrosion, and are more economical than conventional lubricants. Let us prove our case.

℞ FOR YOUR MACHINERY

No. 2 — Ideal for general all type lubrication, ring oiled bearings, wick feeds, sight feeds and bottle oilers.

No. 8 — Because of high film strength and long life it reflects outstanding performance in most types of enclosed gears (speed reducers).

No. 107 — One of the most popular grease type products for general application by pressure gun or cups.

No. 70 — For a wide range of grease applications, especially at temperatures above 200 degrees F.

No. 130-AA — Known nationwide as the superior lubricant for open gears, heavy duty bearings, wire rope, etc.

BALL BEARING — This is the LUBRIPLATE Lubricant that has achieved wide acclaim for use in the general run of ball and roller bearings operating at speeds to 5000 RPM and temperatures up to 300 degrees F.

LUBRIPLATE

FISKE BROTHERS REFINING CO.

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DEALERS FROM COAST TO COAST

CONSULT YOUR CLASSIFIED TELEPHONE BOOK

Selig's LIQUIDIZER

Dirt goes . . . dollars stay with you . . . when Selig's Liquidizer becomes the right hand equipment of the man responsible for the maintenance of your property.

After much research and wide survey of the market's need, Selig's Liquidizer . . . a concentrated oil soap . . . has been developed for heavy duty cleaning of industrial plants, office buildings, institutions, automobiles, trucks, railroad coaches, buses, etc. . . . they take on a new face with Liquidizer in action.

Textile mill owners, whose floor maintenance is their most difficult problem . . . due to accumulations of grease and grime . . . are looking to Liquidizer to solve their cleaning problem and in severe cases find the combination of Liquidizer and Klenexo, another Selig cleanser and detergent, the most formidable means for achieving the best and most satisfactory maintenance at the lowest possible cost.

Ask for a survey of your maintainance problems by a Selig specialist . . . write for an appointment today.

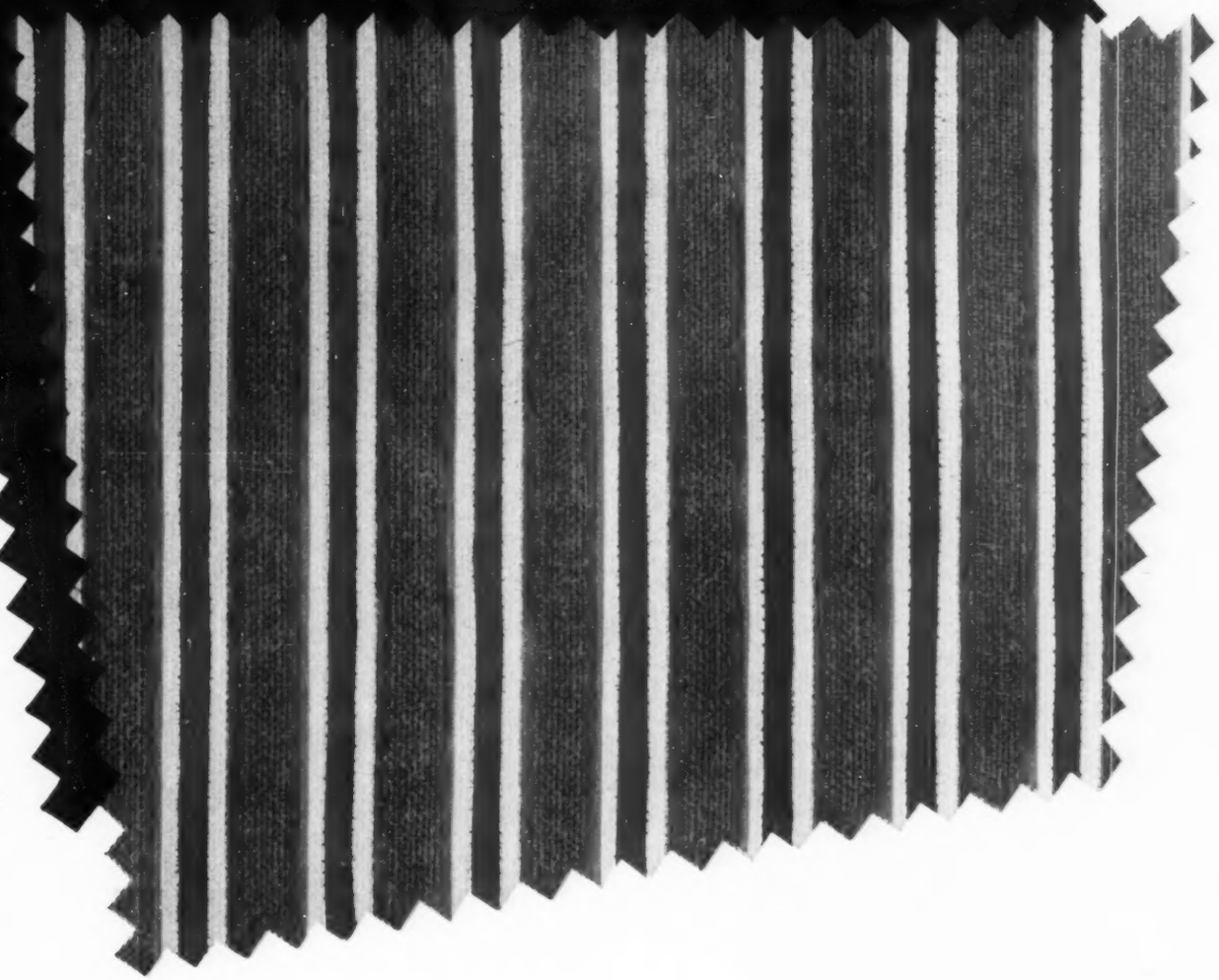
The SELIG COMPANY

Manufacturing Chemist since 1896

GENERAL OFFICES and FACTORY ATLANTA • GEORGIA

SALES OFFICES & WAREHOUSES • NEW ORLEANS • DALLAS

HOW WOULD YOU PRINT THIS PATTERN ON *Aralac + Cotton* FABRIC?



Acme Finishing Company was asked by Stehli and Co., Inc., prominent New York Converter, to print this pattern on a fabric consisting of 55% Aralac and 45% cotton. For this unusual job, Acme executives chose the following unusual, but fool-proof method.

The gray stripe was printed with the new low-crock Aridye* Black FK 4214 cut 1:80 with Aridye Clear 6214. The red was printed with an Aquadye* emulsion made with Rapidogen Red G dissolved by the Rapidogen Developer Method and added to the aqueous phase of the emulsion. After printing, the fabric was dried, acid aged, washed, and finished.

Result—a well-covered, smooth print, with a uniform shade on both the Aralac and cotton.

Important—the Aralac and cotton fabric suffered no damage as might have occurred with strongly alkaline vat pastes.

More and more, Acme and other leading companies are turning to the use of Aridye pigment colors for solving unusual problems and for improving their everyday printing jobs. Interchemical technical representatives are available to help *you* solve *your* problems and produce better printing.

Write to Interchemical Corporation—Textile Colors Division, P. O. Box 357, Fair Lawn, N. J.

*Reg. U. S. Pat Off.

CHECK THESE EIGHT ADVANTAGES

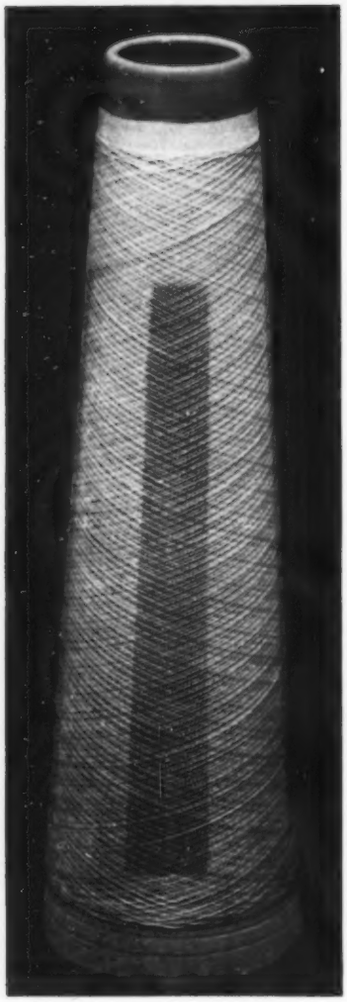
Sharpness of Mark • Exceptional Fastness to Sunlight
Uniformity of Shade • Fastness to Washing
Bright Colors • Economy
Ease of Application • No Impairment of Hand

Aridye *Pigment Colors*

INTERCHEMICAL CORPORATION • TEXTILE COLORS DIVISION, FAIR LAWN, N. J. • ROCK HILL, S. C. • PROVIDENCE, R. I.

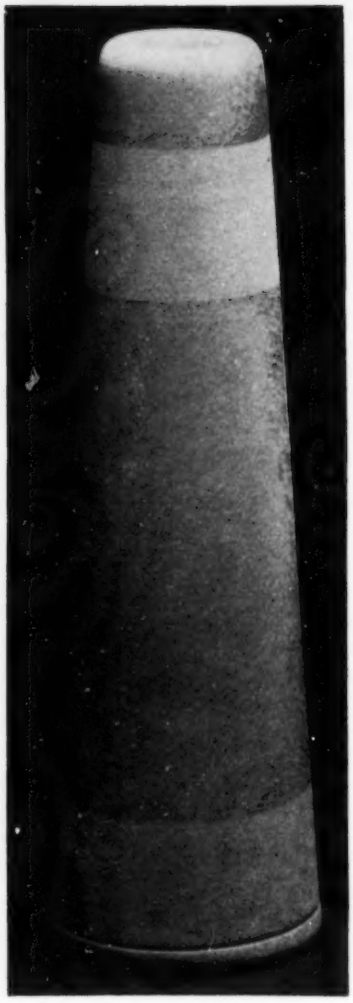
Two different cones with but a single thought–

To Save Waste



LEFT—The "Visible Runout," a development by SONOCO for knitting yarn cones to warn the machine operator by sight the time to change the cone with minimum press-off waste.

RIGHT—The "Velvet Band," a SONOCO development for transfer cones used in magazine creeling that prevents breakage and permits delivery of yarn to the last turn—eliminating waste of time & production.



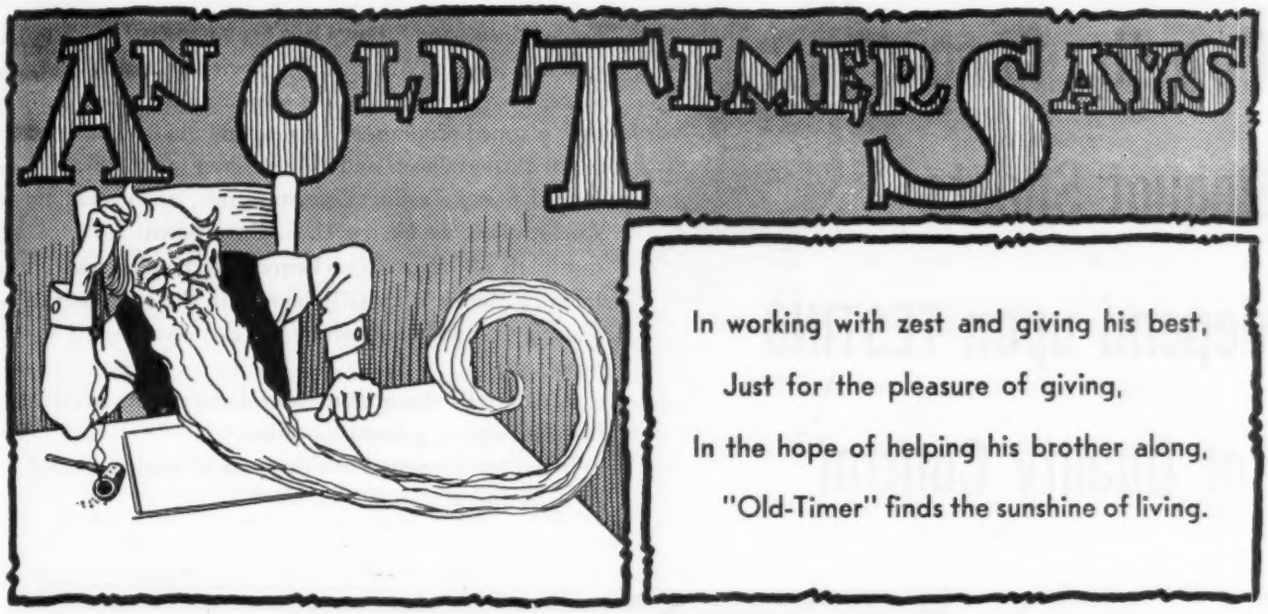
Thus, two entirely different cones made for entirely different uses, permit waste savings for entirely different reasons . . . Examples of technical development work going on constantly at SONOCO which means savings to the textile industry.

sonoco
SERVES THE WORLD
PAPER CARRIERS
REG. U. S. PAT. OFF.

SONOCO PRODUCTS COMPANY

BRANTFORD ONT. · HARTSVILLE S. C. · MYSTIC CONN.

DEPENDABLE SOURCE OF SUPPLY


AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brother along,
"Old-Timer" finds the sunshine of living.

"Brains"

WHAT ARE THEY? What is it? Is it plural or singular?

Well, so far, no one seems to know what brains are or what a brain is.

All animals, I understand, have a brain, and we are animals. However, no animal's brain functions like the brain of a human being. Some functions of the brains of dumb animals and the brains of human beings are somewhat similar.

For example, many dumb animals' brains seem to have the faculty of remembering. You have of course heard that an elephant never forgets. A dog can remember where he buried a bone months ago. Horses, sea lions, and many other animals go through routines of tricks, etc., which they have been taught. But no dumb animal's brain remembers like a human brain.

Capacity of Brain Inestimable

When a person stops to think and recount the millions upon millions of details which a man's brain can recall, it is beyond comprehension how so much could be stored up in a brain of such small dimensions. Your subconscious mind probably began storing up memories by the time you were three to five years old, and how often now do you have something come to mind of your kid days—yes, all of your kid days and all through life?

You can even remember that splinter—the big one—mother or grandma took out of your foot—that toe you always stumped—your first knife—your first long trousers—that licking dad gave you—the thousands upon thousands of faces, even if you cannot remember the names, of all the people you have known—your first day in school, and parts of everything you learned in school. You often recall a certain place in a road—a stream—the old swimming hole—a snake—a pet rabbit or squirrel—thousands, yes millions of images from your childhood, and then all through life.

It would probably be conservative to estimate that if every thought, every sound and every image which a brain has recorded in 50 years could be printed in book form, it would make a pile of books as large as two houses like you are living in. How is it possible for such a mass of items, sounds, images, etc., to be retained by a brain? No one has ever given a plausible answer.

All containers, matters not how large, can be filled up. Tanks which hold hundreds of thousands of gallons can soon be filled up; yes, large reservoirs which hold billions of gallons can be filled up although fed by a very small stream, but, gentlemen, *a human brain can never be filled up.* Matters not how much knowledge you put into it; that only increases its capacity to hold more. If you learn arithmetic your brain is prepared to take in algebra; if you learn carding, your brain is ready to take on spinning and weaving. Then, with a brain full of carding, spinning and weaving, it is just itching for designing. No, that brain of yours can never be filled up, gentlemen, so do not be afraid of overtaxing your brain with knowledge.

Anything Learned Always Available

Remember that everything you put into that brain of yours is available all the time. No one can take it away from you. Depressions may come and depressions may go; you may lose every penny you have accumulated for 20 years, but, brother, you can't lose what you have put into your brain. Knowledge stored in that brain of yours is worth one hundred cents on the dollar today, tomorrow—yes, for life.

You learned that 2+2=4, years

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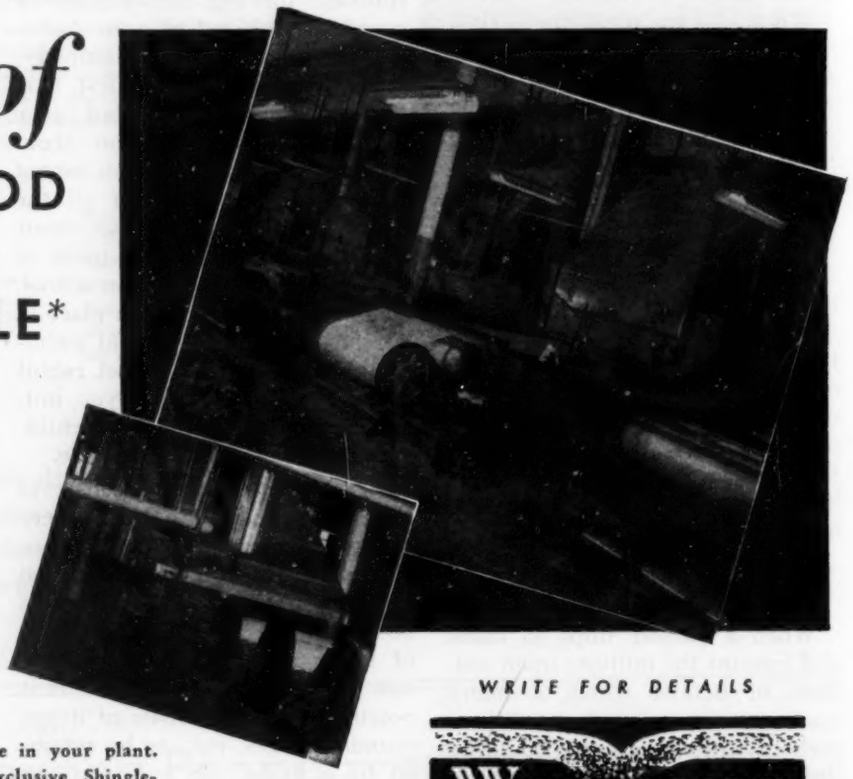
SLASHER HOOD *with exclusive* SHINGLE-BAFFLE*



Automatically collects all moisture from the slasher. Unique baffle construction controls all moisture condensation.

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Drip prevention, based on WOLVERINE'S sound engineering principles, eliminates work stoppages . . keeps production flowing. Products are virtually insured against drip damage.

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and years ago and it is just as true today; it is worth just as much to you today as it was when you stored it in your brain. By the same reasoning, a sound business principle you learned years ago will always be in your stock of knowledge when you need it.

A basic principle of textile manufacturing learned by experience 10 or 15 years ago, is still a basic principle, to be called upon at any time, giving it, of course, the benefit of changed local conditions or changed manufacturing conditions.

Once you have learned to box a shuttle, set a spindle or the flats on a card, no one can ever take that knowledge away from you, and when you wake up to the fact that the more you put into that brain the more it will take—well, if you don't go to work feeding that brain of yours with knowledge, for Pete's sake quit reading OLD-TIMER.

On the other hand, if we have given you an idea—viz: that you cannot fill up your brain; that you cannot overtax your brain by pouring knowledge into it—then why not lay out a course of study for yourself? You are out to make all the money you can, honestly, are you not? And you are fair enough in your reasoning to admit that *knowledge is power,* of course, and that you have not yet acquired the full measure of success you would like to attain (no sane man would admit that), then what is your argument for not preparing yourself for a greater measure of that success that every red-blooded man wants?

Acquiring Knowledge Not Difficult

We are making every effort possible to show you that acquiring knowledge is *not* a difficult problem. OLD-TIMER will never forget how he hesitated to buy a book on designing because it cost $7.50; he was making $1.40 per day running a section, and $7.50 represented many personal sacrifices, but he bought the book and it proved to be worth $750, at least, if not more. But, gentlemen, you can spend $7,500 for books on textile courses or textile magazines and they will never be worth 7½ cents to you if you don't take the knowledge out of those books, etc., and put it into your store of knowledge. You must study to gain knowledge, but, boy oh boy, how it does pay off! Knowledge put into that brain of yours will pay greater dividends than any investment it is possible to make, and it is so easy to acquire.

Here is a very crude illustration which is given with the intention of getting you to realize how easy it is to obtain knowledge: Suppose I come to you with a book, of 300 pages, on psychology in business and say, "Mr. Black, I will give you $25 to read this book." "Oh yeah," you say, "if you are on the square, that's a pick-up," and you read it and pocket my $25. Five years later you may be successful in handling a labor situation which shows your employer that you are above the average man in handling labor, and you get promotion that amounts to $1,000 per year. That thousand dollars goes on, year after year, and the knowledge came out of a book which cost $3.00.

The only weak part of the illustration is the $1,000 per year. We know of many mill executives who would be darned glad to pay three times that much for a man who is outstanding in his knowledge of handling human relations; yes, we mean $3,000 more than you are now making. The sad part of the matter is *you can't find enough of those men to meet the demand.*

That being a fact (and we have already proved it is a fact, in that article about our conversation with mill executives during a trip of only one week), we think it would be helpful to you to discuss:

(1) The many different methods by which a man should use his brains to make him more efficient in his work.

(2) Methods to simplify his ideas of psychology in business.

(3) Leadership which the textile operating executive should strive for.

(4) Ways to interpret character in people.

(5) The ability to get along with your associates and your operatives.

(6) Self-education.

(7) Correct speech.

(8) Educational reading and numerous other thoughts which may come to mind as we discuss "brains."

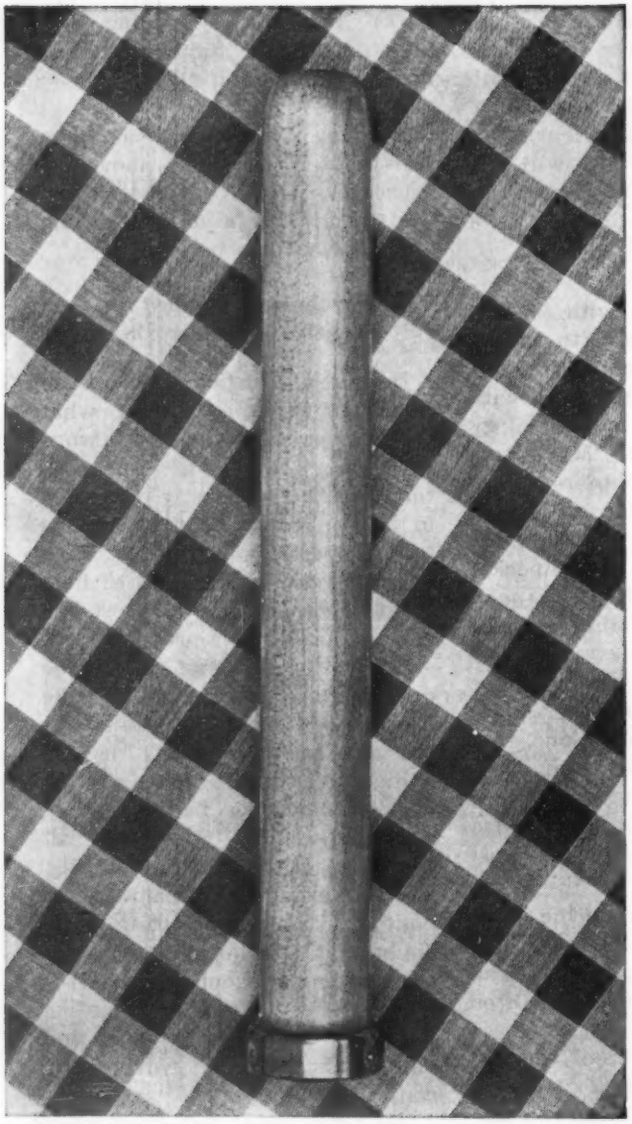
We may not take up each subject in the order listed above because those subjects were simply written down as a general outline of what we have in mind.

Psychology Applied to Textile Manufacturing

In a former article we went to some length in explaining what psychology is. However, the word psychology has many ramifications, but we are mostly interested in its application to our work as textile operating executives. How it applies to management of help is, of course, by far the most important phase. It is probably conservative to say that of all the qualifications which go to make the most successful textile operating executive today is the ability to excel others in the management of people. This reasoning, we believe, also applies to all business, be it manufacturing, merchandising, salesmanship or politics. There is certainly no doubt that psychology is entering the textile management field. It is here, gentlemen, whether you like it or not; therefore, we must find out all about it that we possibly can.

We have heard men say, when they have failed to put some project across, "The psychology wasn't just right." Such a statement usually means that the person making it has not made a very extensive study of psychology. Of course many good operating executives have used, and are using, psychology without knowing it by that name. A lot of psychology is just plain common sense. However, the men who have made a study of the subject have boiled it down, so to speak, to where they can apply its basic principles to any business where people are employed.

Many of the large textile firms have installed research laboratories to study manufacturing problems, etc., but only a few have yet employed technical psychologists. We have asked many textile executives, "What is the most important item in operating a textile



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plant today?", and practically 100 per cent of them reply, without hesitation, "The management of labor," or words to that effect. Then, why in heck hasn't some smart guy installed a research department or something to study, or to teach, its operating executives human problems or human engineering, or whatever you call it?

There certainly is no doubt that many large manufacturing firms, other than textile firms, are giving the problem deep thought. Some have employed college - trained psychologists. They reason that professional psychologists can supply the technical facts and their practical operating executives can put those facts to work. One professional psychologist made a pronounced increase in production by putting into effect numerous schemes to foster friendly competition among the employees. Another one made an extensive study to ascertain what irritated employees, and then the practical foremen set about to eliminate the causes.

These few illustrations show clearly how these new ideas may be applied to textile manufacturing. It is a known fact that very few individuals have exactly the same disposition; however, the same common sense reasoning will apply and get results from two individuals who are basically different in disposition. The old adage that you can't teach an old dog new tricks has been proven a fallacy, so far as human beings are concerned. A human being is never too old to learn, is a more appropriate saying—not only a more appropriate saying, but a proven fact. You fellows who think or claim that you are too old to learn, will have to think up a new alibi. If you have the determination to improve your executive ability, you certainly can do that very thing.

Knowledge Pays Dividends

Putting knowledge into your brain only adds to your brain's capacity. Your brain cannot be filled up, and you are not too old to learn. Adding to your executive ability will pay larger dividends than anything you can do. Albert Edward Wiggan, who edits "Explore Your Mind," which appears in many daily newspapers, cites this example of the value of managing ability, or executive ability, whichever you wish to term it:

"Recently a famous Wall Street banker asked another how much money a certain man could get without revealing what he was going to do with it. The other replied, 'How much money is there in Wall Street?' His managing ability was so well known that he could have all the money he wanted for the asking. Executive ability can always get money."

And let us add to that statement that executive or managing ability can and does always get the top jobs with the largest salary. No one has a corner on managing ability. Although some men may acquire it more easily than others, it has now been fully demonstrated that any normal man may acquire this priceless qualification if he sets his head to do it.

Do you want to get started?

Here are a few ideas which should give you food for thought, ideas which you should be able to apply to your management of employees when you add to them your own practical knowledge of your local conditions in your room or your mill.

"Mental Wages" Important

For example, how much "mental wages" are you paying? Mental wages are not put into the envelope; but, under present day conditions, "mental wages" are of much greater importance than hourly wages, or salaries, or any kind of money wages. Employee wages can be frozen, but there is no possible way for the government, or any agency or condition, to freeze "mental wages."

You have probably already interpreted in your own mind what OLD-TIMER means by "mental wages." You very likely had not given the idea much thought, but just as soon as we said "mental wages" you got the general idea as to what we meant, didn't you? Well, brother, pick it up now and go on from here.

Of course you have known all the time that money is not all that people work for. You have seen it demonstrated in many, many ways. O. K., then, put that brain of yours to work and devise ways and means to pay your operatives more "mental wages," and you will "beat the other fellow" to less absenteeism, more production, less seconds, less cost and a lot more satisfaction in running your job.

OLD-TIMER firmly believes that "mental wages" opens up a greater opportunity today for you to obtain results, than any other one item of management. And it is so easy to obtain.

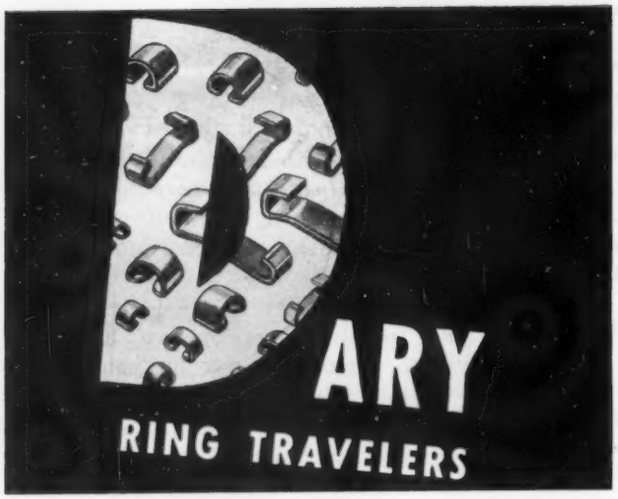
Here is where your psychology or just plain human nature comes in.

Use every means at your command to get employees to become more interested in their work. Get your employee to realize how much money he has been entrusted with. For example, prewar price of a plain automatic loom was about $400.00; therefore, a 50-loom weaver is operating $20,000 worth of machinery. Back when cards could be bought for $1250, a card hand operating 30 cards was operating $37500 worth of machinery. Ask a card hand sometime if he would put up that much of his own "dough" for another fellow to bang around like some operatives treat their cards.

If you can get an operative to appreciate his job, you immediately raise his "mental wages."

Plan every conversation you have with employees with the main thought of raising his or her mental wage." For example, OLD-TIMER never just gave a section to a section man, nor did he assign this duty to one of the second hands. He had that section man in the office and explained that he was asking the section man to "TAKE CHARGE" of that section. He was going to be in charge of so many thousands of dollars worth of machinery—he was in position to influence the operatives on that section—that was his responsibility, etc., etc.

That section man went out of OLD-TIMER'S office feeling like he was "somebody." His "mental wage" had been boosted about 100 per cent. Now, gentlemen, that was a good day's work in any man's management. And don't think for



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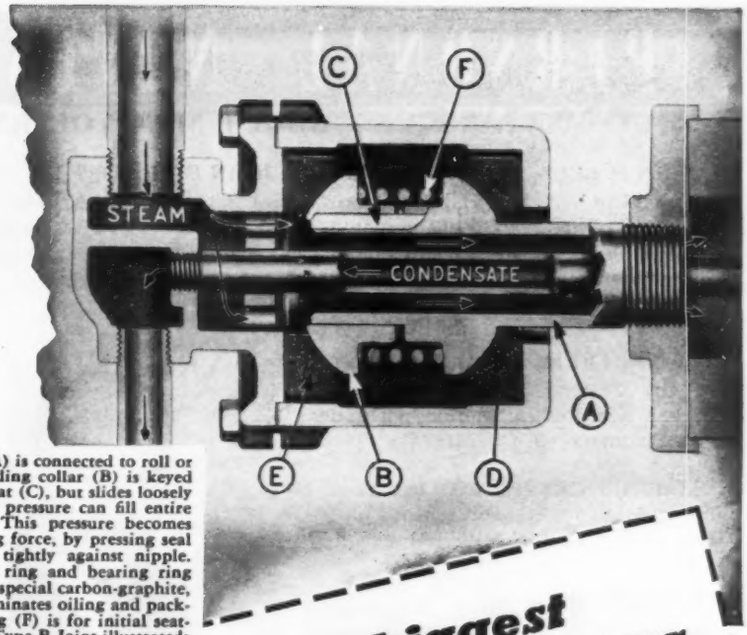
a moment that the training of that section man stopped there. By all means no! In a few days the assistant overseer made it a point to spend an hour or so with the new section man. The assistant overseer would go from job to job with the section man as he went about his work; meantime, he would carry on a conversation which had been carefully worked out by the assistant overseer and OLD-TIMER. This conversation was planned especially to add to the section man's "mental wage"—to impress upon him his responsibility—to anticipate his work—that is, catch the job BEFORE the job caused the machine to stop and caused the operative to lose money.

These are just a few illustrations, gentlemen, as to how we worked on the "mental wage" idea.

Space will not allow us to give you numbers of others, but you certainly can carry on with the general idea. Don't forget that an employee is much more than two arms and two legs; he, or she, has a brain, and that brain is receptive to kindness and a square deal. Also, that very few human beings have ever been born who were not receptive to encouragement. When you show appreciation to an operative who has done well on his machines, that appreciation is more than reciprocated by that employee. Also, when you do your duty by showing disappointment when an operative has not done well in his work, at the same time showing that operative how he or she can improve their efficiency and that you are personally interested in helping them do so, you will get results there too providing, of course, you convince that operative you are interested in his welfare. The world has changed and will continue to change, but old man Human Nature is still doing business at the same old stand.

You can remember the little incidents which your boss did, or your teacher in school did, that pleased you. Well, brother, those same kind of things will please people today, and they will always please them, and, at the same time, be building up that feeling of loyalty in the operative which is about the most valuable asset we have today.



Nipple (A) is connected to roll or drum. Sliding collar (B) is keyed to nipple at (C), but slides loosely over it so pressure can fill entire housing. This pressure becomes the sealing force, by pressing seal ring (D) tightly against nipple. Both seal ring and bearing ring (E) are of special carbon-graphite, which eliminates oiling and packing. Spring (F) is for initial seating only. Type B Joint illustrated; other types, sizes for all needs.

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In terms of physical size alone, the Johnson Joint could hardly be called big machinery. But in its ability to save time and trouble, and promote plant efficiency, its stature approaches anything the industry has ever seen.

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In dollars and cents, what does all this add up to? Well . . . enough at least to pay the cost of switching over to Johnson Joints in just a short while. Enough certainly to make the Johnson Joint too big to overlook.

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PERSONAL NOTES

ABOUT MEN YOU KNOW

JOHN P. BELL, former general superintendent of the Balston Yarn Mills, Lincolnton, N. C., has accepted the position as superintendent of the cotton department, Judson Mills, Greenville, S. C.

A. M. HERBERT, former engineer for Orr Cotton Mills, Anderson, S. C., has accepted a similar position with Piedmont (S. C.) Mfg. Co.

MARCUS CLEVELAND has been promoted to night overseer of spinning at Orr Cotton Mills, Anderson, S. C.

NORMAN J. WAUGH, identified with Dan River Mills since 1919, has been appointed secretary, succeeding WALLACE W. AYRES, retired.

DR. CARLYLE HARMON, former manager of the chemical division of the Marathon Corp., Rothschild, Wis., has been chosen director of research development of Chicopee Mfg. Corp., New Brunswick, N. J.

JOHN BANCROFT, JR., was elected chairman of the board and W. RALPH MacINTYRE was named president of the Jos. Bancroft & Sons Co., Wilmington, Del.

Mr. Hoskins

HAROLD B. HOSKINS, formerly with Cannon Mills, has been elected to the board of directors of Textron, Inc., and will also be a consultant to the company on marketing and merchandising.

Hart Cotton Mills, Inc., Tarboro, N. C., has made the following announcements: J. G. SAUNDERS, formerly with Chadwick-Hoskins Mill No. 3, Charlotte, N. C., is now overseer of carding at the Hart Mills. A. R. ODELL, former overseer of weaving at Calhoun Falls Mfg. Co., now holds the same position at Hart. H. G. KING, former overseer of spinning at Pomona (N. C.) Mills, has accepted a similar position at Hart. J. E. BRITT, former superintendent of Hart Mills, has accepted the position of office manager of the Newberry (S. C.) Textile Mills. MARCUS W. CARTER has been elected vice-president and manager of the Hart Mills.

LEON H. TOMPKINS has been appointed purchasing agent in charge of machinery, chemicals, paper supplies, office supplies and trim materials for The William Carter Co., Needham Heights, Mass.

PAUL E. SMITH, former director of research and quality control, Fieldcrest Mills, Spray, N. C., has been appointed assistant general manager at the Ware Shoals, S. C., division of Riegel Textile Corp. Mr. Smith replaces JAMES HARRELL, who has joined J. P. Stevens and Co., Inc., in charge of finishing activities.

LOUIS D. DeLOACH, former executive assistant to the vice-president in charge of production at Springs Cotton Mills, Lancaster, S. C., has become resident manager of the D. E. Converse Co. plant at Glendale, S. C. The Converse Co. is now owned by J. L. Stifel & Sons, Inc., Wheeling, W. Va.

D. C. ANDERSON has succeeded the late F. T. NEWBERRY as manager and superintendent of Montgomery (Ala.) Cotton Mills.

GEORGE D. BAKER, former superintendent of the Springs Cotton Mills Eureka Plant at Chester, S. C., has succeeded H. M. JACKSON as superintendent of Pacolet Mfg. Co. Mill No. 4, New Holland, Ga. Mr. Jackson is associated with Lumite Division of Chicopee Mfg. Co., Cornelia, Ga. J. A. FERGUSON has been assigned to Mr. Baker's position at Chester.

NORMAN E. RANDALL, former vice-president, is now president of Columbia Narrow Fabric Co., Shannock, R. I., and Peace Dale (R. I.) Braid Co., succeeding GEORGE P. CLARE, now chairman of the board.

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PHILIP F. COBURN is now general manager of Housatonic Mills, Inc., Housatonic, Mass., succeeding RICHARD J. STEFFENS, resigned.

RAYMOND CURTIS, president, Kenyon Piece Dye Works, Kenyon, R. I., is visiting English finishing plants to observe the latest trends in British finishing of synthetics.

TALBOT SHELTON has become vice-president of R. K. Laros Silk Co., Bethlehem, Pa.

Mr. McGowan

JAMES McGOWAN, former Metropolitan district sales representative of the dyestuff department, Calco Chemical Division, American Cyanamid Co., has joined the American Thread Co. as assistant to the chief dyer.

JACK WARD, son of ELWOOD WARD, weaving overseer of the Fulton, N. Y., mills of American Woolen Co., is now associated with the engineering department of the company at the Wood mill in Lawrence, Mass.

R. M. McCRARY has been appointed superintendent of Laurens (S. C.) Cotton Mills, having resigned a similar position in Martinsville, Va.

J. N. JONES, Kings Mountain, N. C., has been made superintendent of Balston Yarn Mills, Lincolnton, N. C., succeeding J. P. BELL, who is now with Judson Mills, Greenville, S. C.

Burlington Mills Corp. of New York have announced the following changes: R. L. HUFFINES, JR., former vice-president, has been named president and a director, succeeding WILLIAM KLOPMAN, now in an advisory capacity; W. MALCOLM BRADY, merchandising manager of the spun division, was named a director and member of the executive committee: JOSEPH W. STARK, head of the narrow fabric division; WALTER S. HORNE, merchandising manager for the decorative fabrics division; JOHN P. DOYLE, in charge

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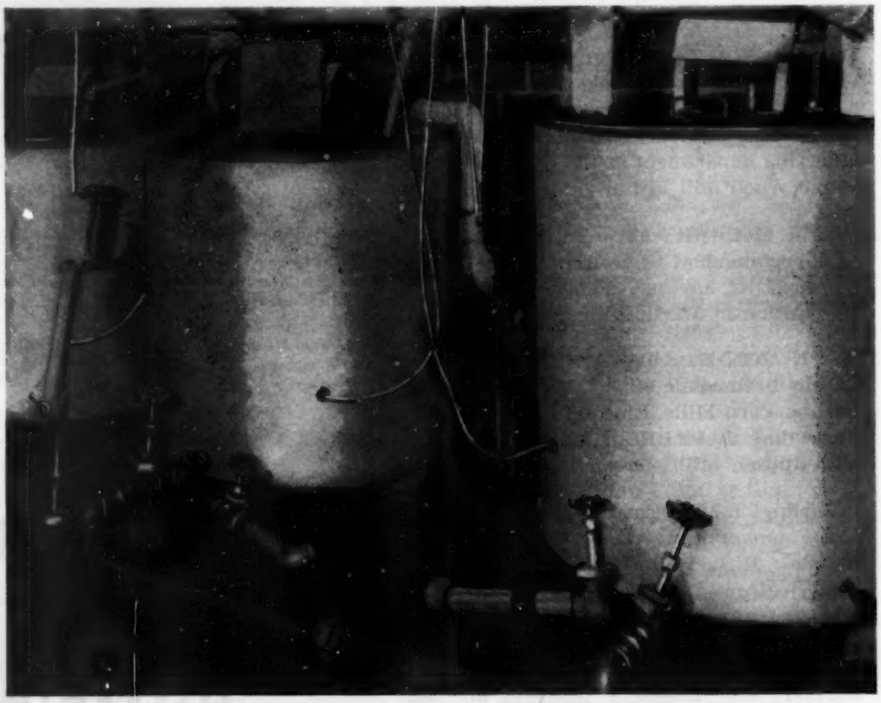
Our facilities provide for the construction of all types of processing vessels, in stainless clad steel, Monel metal, special alloy steels and kindred materials — with riveted joints and electrically welded.

Submit your problems to our engineering department.



R.D. COLE MFG. CO.
Newnan Ga.

ESTABLISHED 1854

of hosiery sales and ALFRED C. WERNER, head of the merchandising activities of the foreign and export division, were all named directors and vice-presidents.

GEORGE J. SWIFT, former manager of the blanket department at American Woolen Co., New York, has been elected a vice-president of Leaksville Woolen Mills, Inc., Charlotte, N. C.

BERTRAM E. GREEN, associated with the Revere Knitting Mills, Malden, Mass., has been elected president of the National Knitted Outerwear Association. Mr. Green succeeds OSCAR W. FISHEL, Standard Knitting Mills, Cleveland, Ohio.

K. D. HENRY, a former research and development engineer, has been appointed foreman of the finishing department at the Woolen Mill, Fieldcrest Mills, Marshall Field and Co., Spray, N. C. J. T. ROSE, formerly of the quality control laboratory, has been transferred to research and development.

A. E. THOMPSON, formerly located in Enoree, S. C., has resigned the position of overseer of carding and has accepted that of superintendent of the Oconee Textile Co., Whitehall, Ga.

JAMES M. FLACK, former director of industrial relations for the lingerie group of Textron, Inc., in Manchester, N. H., has been appointed industrial relations manager for the sewn products division of that company. JAMES O. SEARS, former plant manager at Textron-South Portland, Me., is now directing industrial relations for the lingerie group. THOMAS T. CLARK, JR., connected with the Southwell Wool Company before the war, is now plant manager in South Portland.

E. H. HINES, JR., former superintendent of the Elm City plant of Callaway Mills, has been appointed manager of the United Rayon Mills plant of the United Merchants and Manufacturers, Inc., at Elberton, Ga.

ROBERT WALKER, formerly associated with the Pawtucket Dyeing & Bleaching Company, is now superintendent of the Fall River (Mass.) Dyeing & Finishing Company.

NICK WINROTH, formerly with Union-Buffalo mills, has accepted a position as superintendent of the Darlington (S. C.) Mfg. Co.

SAYS A TEXTILE PRINTER

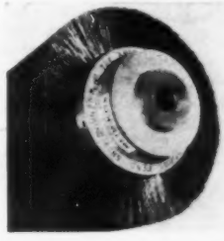
"I LIKE ••• METLKOR* FURNISHER BRUSHES ••• They last months longer"

A leading printer (name on request) says, "Prior to using Jenkins' 'Metlkor' nylon bristle brushes, we used wooden furnisher brushes. Then we got a sample Jenkins' brush. It far outlasted our old brushes. We used to buy a dozen wooden brushes every few weeks. We haven't had to replace a Jenkins' 'Metlkor' brush in months."

You, too, will find you get longer brush life, and save money in many other ways when you use Jenkins' "Metlkor" brushes.

*Reg. U. S. Pat. Off.

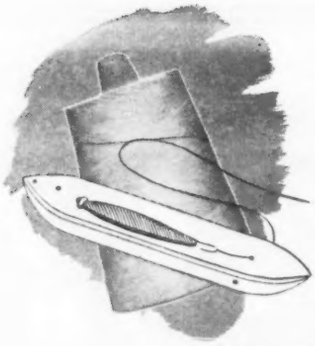
"Metlkor" Furnisher Brushes, Blanket Washing Brushes, Shearing and Brushing Machine Brushes, Pressing and Carding Machine Brushes and many others.

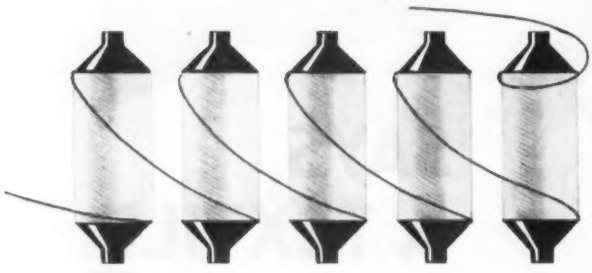


Write today for fully illustrated catalog of Jenkins' "Metlkor" nylon or Plain Bristle Brushes.

M. W. JENKINS' SONS, INC.
CEDAR GROVE, ESSEX COUNTY, NEW JERSEY

Since 1877 manufacturers of industrial brushes exclusively.





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Plans and designs for all types of projects related to the textile industry. Appraisals, modernization studies, machinery layouts, air-conditioning, power and water filtration plants, and other phases of textile engineering.

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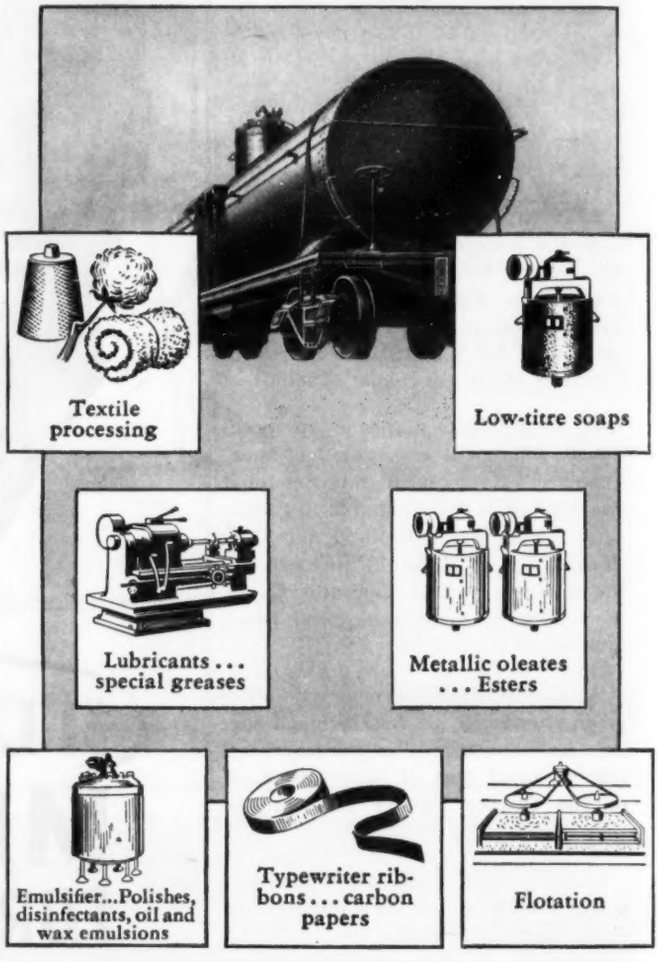
TWENTY-NINE YEARS' NATIONWIDE EXPERIENCE
IN INDUSTRIAL AND TEXTILE DEVELOPMENT

UNIQUE STABILITY in New, Improved Emery Elaines*



Better Performance in Every Use

Repeated tests on all Emery Oleic Acids and products manufactured from them prove:

- **Greater STABILITY**
- **High resistance to OXIDATION**
- **Least tendency toward RANCIDITY**
- **Superior "ODOR" characteristics**
- **Improved HEAT STABILITY**
- **Same properties imparted to finished Products in many cases**

*Elaine is the trade mark for all Emery Oleic Acids

0-18 ELAINE		0-19 Low-Titre Elaine	
Titre	8—11° C.		3—5° C.
Color (Lovibond)	30Y—8 Red, 1"		30Y—8 Red, 1"
Iodine Value	90—93		91—95
Sap Value	195—199		195—199
Unsap (max.)	3.0%		3.0%
0-20 White Elaine		**0-21 Low-Titre White Elaine**	
Titre	8—11° C.		3—5° C.
Color (Lovibond)	15Y—1.5 Red, 5¼"		15Y—1.5 Red, 5¼"
Iodine Value	90—93		91—95
Sap Value	197—201		197—201
Unsap (max.)	2.0%		2.0%

EMERY INDUSTRIES, INC.

LIQUID FATTY ACIDS

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STEARIC ACID • OLEIC ACID • ANIMAL AND VEGETABLE FATTY ACIDS • TWITCHELL PRODUCTS • PLASTICIZERS

Obituaries

W. N. WILLIAMS, 69, prominent textile manufacturer and associated with Rex Mills, Gastonia, N. C., died recently at his Cherryville, N. C., home after an illness of a few days.

SAMUEL N. SELMAN, 51, executive vice-president of Fox Chase Knitting Mills, Rockledge, Pa., passed away recently.

JAMES R. EDWARDS, SR., for 40 years master mechanic of the Shawmut Mill Division, of the West Point Mfg. Co., passed away at his home in Shawmut last January after a long illness.

GEORGE A. DORR, 77, owner of Dorr Woolen Mill, Guild, N. H., died recently at his home in Newport after a long illness.

JOSEPH P. GAULT, 79, head of the Gaut Textile Mills, Knoxville, Tenn., who had been ill since last summer. died recently at Ft. Myers, Fla.

LESTER E. CLARK, 46, office manager of the Hill Division of Bates Mfg. Co., Lewiston, Me., died suddenly at his home in Auburn, Me.

JOSEPH M. MERROW, president since 1898 of The Merrow Machine Company, Hartford, Conn., died last March at his home in Hartford at the age of 99. The versatility of skills and diversity of interests implied in the familiar phrase "Yankee ingenuity" were well summed up in the career of Mr. Merrow.

RICHARD HAYES THATCHER, Daylesford, Pa., a Rayon division salesman of the Du Pont company, died last March in his 43rd year. He had suffered a heart ailment for some time.

ARTHUR CLEVELAND GOODWIN, 62, Greensboro, N. C., purchasing agent for the Proximity Mfg. Co., died recently at a Winston-Salem hospital, following four weeks of illness.

WILLIAM C. RYCKMAN, vice-president and general superintendent in charge of production at the Lane Cotton Mills, died last month in a New Orleans, La., hospital.

HAROLD J. LEYDON, 46, vice-president of North Star Woolen Mill Co., died suddenly from a heart attack at his home at Mt. Vernon, N. Y., recently.

ONYX IONICS

Newsworthy items for textile technologists and production men

Volume 1 | May, 1947 | Number 3

Non-Ionic Surface-Active Detergent and Emulsifier with Unusual Dispersing Action

Neutronyx 330 provides exceptional dispersing effects and emulsifying action together with complete compatibility to electrolytes, hard water, normally met with concentrations of acids and alkalies, and all anionic or cationic surface-active agents.

It is particularly valuable as an auxiliary detergent in hard water conditions, and has shown unusual results as an assistant in the chlorination of wool for shrinkproofing.

Neutronyx 330 is very useful as a leveling agent or retarder in acid dyeing of wool. It has the added advantage of not adsorbing on textile fibres.

It is in wide use on other textiles in such applications as: a scouring assistant for rayon and acetate; a dispersing and solubilizing agent for acetate colors, as well as for pigments in organic vehicles; and as an assistant to improve exhaustion of anionic or cationic hosiery finishes. It is a good wetting agent in warm water, and shows unusual stability against hardness, electrolytes and both anionic and cationic surface-active agents.

NEW DEVELOPMENTS

For Further Details Write Onyx

Material Improvement in Sanforizing is obtained when the goods, prior to shrinking, are passed through a 1% solution of Phi-O-Sol. This powerful wetting and penetrating agent insures hydroscopic and easily wetted goods with ultimate superior "shrinkproofness." No. 53

Assuring Level Shades on All Piece Goods, unions and pile fabrics, Onyx NSAE (Naphthalene Sulfonic Acid Ester) is highly concentrated and requires smaller amounts than other penetrants. Works in neutral alkaline or acid solution and is unaffected by hard water, acids, alkalies, hydrosulfites, bleaching liquids or mordanting agents. No. 54

A Smooth, Mellow Hand on Rayon Taffeta is best obtained by the use of Onyxsan S followed by partial drying and hot calendering while still slightly damp. No. 55

Effective Crush Resistance on All Cellulose Fabrics is an outstanding function of Onyx NCF Parte. This urea formaldehyde compound imparts a durable and crush resistant finish. No. 57

Onyx Resin Finishes Are Fitted to the Specific Job

Synthetic resin finishes of considerable versatility are sometimes desirable. Onyx Xyno Resin AA40—a vinyl resin dispersion—is capable through suitable manipulation of providing a wide range of finishes from a full, mellow hand to a good stiff body on cotton, acetate and rayon. Since it can be mixed with starch, glue, gelatine and water repellents, further versatility is afforded.

On the other hand, a far more specialized resin finish is desirable more often than not. Onyx Resin S-69 is an excellent example. This solvent-free special copolymer resin dispersion was developed to provide a dry, "springy" hand, and is proving of considerable value for nylon and other nettings.

Onyx Resin 362, a viscous vinyl resin dispersion, is peculiarly valuable for imparting a special stiff finish on organdies, marquisettes, ninons, etc., while Eternalure D-15 is still another example of a specialized resin finish.

If you are interested in a specific resin finish for any particular textile, consult an Onyx salesman or technician.

PERFORMANCE

Surface Tension (Dynes per Cm.)
DuNouy Tensiometer (25°C.)

Concentration	Dynes
0.5%	34.5
0.1%	35.2
0.01%	35.4

Wetting Action (Draves Test)

Concentration	25°C.	60°C.
0.5%	215 Sec.	27 Sec.
0.2%	5 Min. Plus	58 Sec.
0.05%	"	170 Sec.

Detergency
Hunter Reflectometer with standard soiled cotton before and after washing.

Concentration	Per Cent
0.1%	13.5
0.05%	11.9
With addition of 0.25% TSPP	
0.1%	22.8
0.05%	15.0

For a Full, Mellow Hand on Nylon Hose

Nylons finished with Eternalure D-15, the one-treatment resin finish, have greatly improved snag resistance, clarified and tightened stitch and desirable body without excessive stiffness. "Eye appeal" is notably improved on every gauge and denier hose.

From the finisher's viewpoint, Eternalure D-15 has many advantages. The treatment is easy to apply without changes in equipment or operations. Hose, particularly sheer types, are easier to handle after boarding. Deposits do not build up on the forms, and hose do not stick.

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Onyx Oil & Chemical Company
JERSEY CITY 2, N. J.
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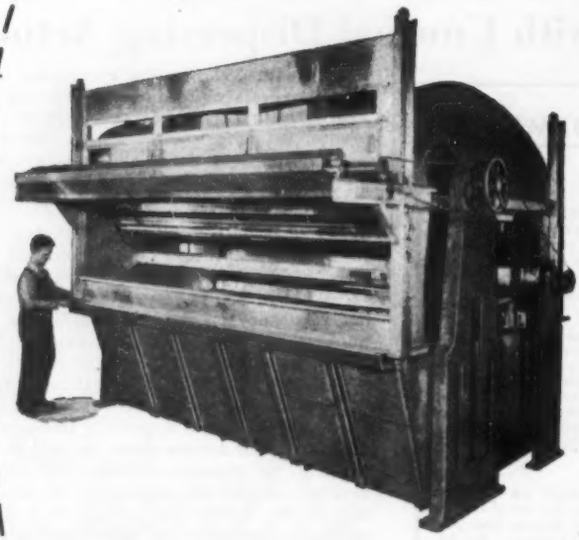
Takes *less* Time

for Loading, Heating, Lacing, Doffing, Cleaning



Gives you *More* Time *for the actual dye runs which build your profit*

AND it pays its way handsomely by cutting water and steam costs lower than ever. Everything *YOU'VE* ever wanted in a dye box has been incorporated in

The New BLICKMAN Fully Enclosed Stainless Steel Dye Box

Send for further information

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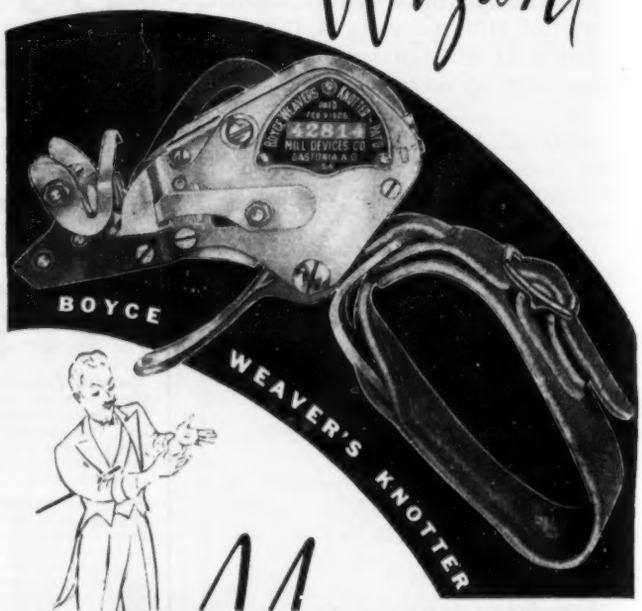
205 GREGORY AVENUE • WEEHAWKEN, N. J.

Manufacturers of stainless steel textile equipment, dye boxes, linings, cylinders, dry cans, rolls, hoods, tanks

THE WINDING ROOM *Wizard*



THAT MAKES WEAVE ROOM *Magic*

This miracle of mechanical precision and efficiency does more than lower production costs in terms of time and labor . . . its accurate, dependable performance definitely steps up the quality standards of a winding room.

The Boyce Weaver's Knotter ties a perfect weaver's knot and clips the ends in one fast, smooth action. This means finer, stronger yarns . . . less seconds . . . and improved quality in the processes that follow.

In mills where quality counts, you will find the Boyce Weaver's Knotter doing its vitally important job.

MILL DEVICES COMPANY
DIVISION OF
A. B. CARTER, INC.
GASTONIA N. C.

REPRESENTATIVES

C. E. HERRICK, 44 Franklin Street, PROVIDENCE, RHODE ISLAND
R. D. HUGHES SALES CO., 1812 South Main Street, DALLAS, TEXAS
HUGH WILLIAMS & CO., 47 Colborne St., TORONTO 1, CANADA

SUPPLIERS' NEWS

WHAT THEY ARE DOING

The Industrial Rayon Corp., Painesville, Ohio, has received the Distinguished Service to Safety Award presented by the National Safety Council for an outstanding record of industrial safety achievement during 1946.

Miss Margaret Catherine Minford, assistant to C. D. Mercer, president, and in charge of all women personnel, has been made assistant secretary of the Willcox & Gibbs Sewing Machine Co., New York.

Mr. Yardley

The following officers have been elected by Jenkins Bros., manufacturers of valves; Alfred J. Yardley, a great grandson of the founder, Nathaniel Jenkins, has been chosen as president to succeed his father, Farnham Yardley, who became chairman of the board. James L. Dunn, vice-president in charge of industrial relations, and C. C. Chamberlain, general sales manager, were elected to the board of directors.

Archie Henry, in addition to his representation of the Norwich Knitting Co. on the West Coast, has undertaken the sale of products of Kaumagraph Co., Wilmington, Del., in 10 Pacific states.

The Carborundum Co. recently elected H. K. Clark, former executive vice-president, as president to succeed Arthur Batts, elected chairman of the board. Edwin R. Broden was made vice-president in charge of operations, member of the board of directors and a member of the executive committee.

Minneapolis-Honeywell Regulator Co. and its industrial division, Brown Instrument Co., Philadelphia, Pa., have opened a district office at East Orange, N. J. The new site will be operated under the New York branch office direction.

The recent appointment of Henry Sentlar as vice-president and member of the board of directors has been announced by the Aqua-Sec Corp. Mr. Sentlar has been with this company for 10 years.

A. C. Lawrence Leather Co. and England Walton Division have announced that their Boston office is presently located in the United Shoe Machinery Building.

Ralph D. Holcomb, former district manager for the San Francisco territory, has been elevated to the position of general sales manager for the Harnischfeger Corp. of Milwaukee, builder of P&H products.

William J. Harrison, formerly with the textile technical department of Monsanto Chemical Co., has been appointed manager of Chemo-Textiles, Inc., West Warwick, R. I. Mr. Harrison will direct production, research and sales development of resin treated yarns.

Columbia Chemical Division of Pittsburgh Plate Glass Co. has announced the appointment of Walter T. Johnson as New York district sales manager. Mr. Johnson has been associated with the firm since 1930, formerly in the research department at Barberton, Ohio.

Mr. Schaefer

Edgar F. Schaefer, executive vice-president of Gardner-Denver Co., was elected president and H. G. Myers, former president, became chairman of the executive board at a recent meeting of the stockholders of

Is Down Time a pain in your neck?

Thousands of RunRite Plastic Sheaves have been running continuously, in many plants, for over six years, and still going perfectly. Under similar conditions they should do equally as well for you. Figure your savings in reduced down time alone. Then, bear in mind, that RunRites' smooth, perfectly balanced strap surface means longer life to harness straps. Once installed, they need no further attention for years of dependable service.

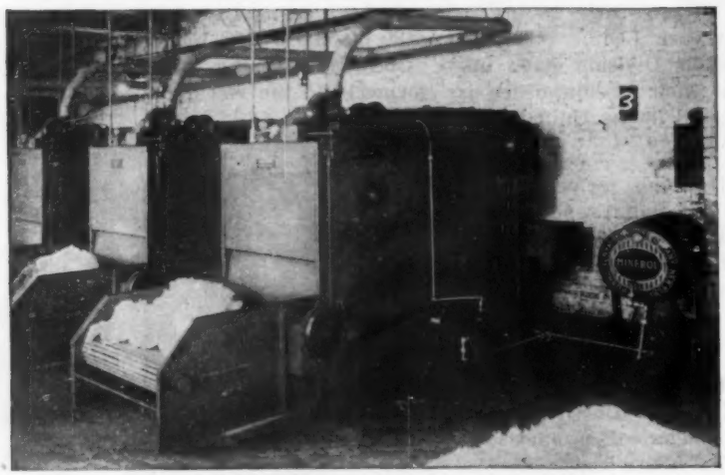
RUNRITE Plastic Sheaves

NATIONAL PLASTICS, INC. KNOXVILLE 2, TENN.

REPRESENTATIVES

EMMONS LOOM HARNESS CO., Lawrence, Mass.
WATSON & DESMOND CO., Charlotte, N. C.
HENRY H. HERSEY, Greenville, S. C.
HARRIS MANUFACTURING CO., Atlanta, Ga.

MINEROL FIRST and FOREMOST CONDITIONING AGENT for Textile Fibres.



● **MINEROL** is a prepared agent for conditioning textile fibres..a systematic Process of Spraying Natural and Dyed Raw Stock. • **MINEROL** helps to separate long fibres from the short. It saves *good fibres* and prevents waste. It makes fibres more supple..more pliable. • **MINEROL** provides *control* of conditions caused by static electricity. It protects the cards and preserves the wire. • **MINEROL** prevents Dust and Fly..safeguarding health and insuring better working conditions. • **MINEROL**..as a conditioner is more urgently in demand thru the increased use of staple Cut Rayon and its varied combinations with cotton, wool and other fibres.

BRETON MINEROL PROCESS PATENTED

BORNE SCRYMSER COMPANY

Originators of the BRETON MINEROL PROCESS for CONDITIONING FIBRE

ELIZABETH, N. J. — **CHARLOTTE, N. C.**

NEW ENGLAND REPRESENTATIVES

A. M. KNIGHT, West Yarmouth, Mass. — W. M. DYNES, West Springfield, Mass. — S. T. DOUGLAS, JR., Westwood, Mass.

SOUTHERN REPRESENTATIVES

R. C. YOUNG, Mgr., Charlotte, N. C. — JOHN FERGUSON, LaGrange, Ga. — W. E. SMITH, Charlotte, N. C.

DYESTUFFS

ACCO

CHEMICALS

Manufacturers of Dyestuffs
and
Chemical Specialties
for the
Textile Industry

AUGUSTA CHEMICAL CO.

AUGUSTA — DYESTUFFS ACCO CHEMICALS — GEORGIA

the Gardner-Denver Co. Mr. Meyers replaces the late J. W. Gardner.

Veeder-Root, Inc., Hartford, Conn., has announced the election of Arthur E. Kallinich and David J. Post as vice-presidents, and Andrew J. Rebmann, assistant treasurer. Mr. Kallinich, former sales manager, has been with the company since 1912. Mr. Post joined the Veeder Mfg. Co. in 1926, and was appointed assistant to the president in 1944. Mr. Rebmann has subsequently held the positions of statistician and executive assistant.

Mr. Theobald

The Mathieson Alkali Works, New York, has promoted O. J. Theobald, Jr., former assistant district sales manager in the Charlotte, N. C., office, to the position of district sales manager in that same area.

Gastonia Roller, Flyer and Spindle Co., Gastonia, N. C., has elected the following officers: F. B. McDonald as president to succeed C. E. Honeycutt, resigned from active duty; Wilson Williams as vice-president; and Mrs. Ollie Handsel as secretary and treasurer. Joe Whitehurst will be superintendent of the plant. Mr. Honeycutt will serve as chairman of the board of directors.

Ernest A. Feustel, Inc., now located in East Rutherford, N. J., plan to move in the near future to a new building on State Highway No. 17, Lodi, N. J.

Elliott D. Cole, formerly with Mount Hope Finishing Co., has been appointed general manager of the Anchor Color & Gum Works division of Arnold, Hoffman & Co., Dighton, Mass. He succeeds Frederick W. Mayer, who is retiring after 40 years of service with the company. William T. Clark has been chosen manager of the Boston office of Arnold, Hoffman & Co., Inc., manufacturing chemists. He succeeds Joseph A. Bryant who is retiring after 50 years of service.

on floors kept CLEAN, SMOOTH, SAFE with the

TENNANT FLOOR MAINTENANCE SYSTEM

To give a BIG boost to morale, here's the place to start—wood floors made bright, safe, and "sure-footed" by TENNANT *dry*-cleaning. You get rid of dangerous, slippery grime . . . make floors many times brighter . . . and keep floors in better shape than *ever* before, usually at less cost!

BRINGS FLOORS TO LIFE! With the mechanized, easy-to-use Tennant System you whisk off dingy, oily top fibers. Leaves wood smooth and bright.

MAKES FLOORS DIRT-RESISTANT. Sealing process hardens floor . . . makes it tough, durable, easy to keep clean.

DRY CLEANS, ELIMINATES SCRUBBING. Saves hours of tedious manual work . . . makes your floors cleaner, brighter, smoother than you'd believe possible!

FITTED TO YOUR SPECIAL NEEDS

The Tennant System for your mill will be individually selected, planned and arranged for your specific needs. Assures best results . . . saves you time and expense. ASK FOR A REPRESENTATIVE TO CALL. No obligation.

WRITE TODAY! *Send for complete details.*

G. H. TENNANT CO.
2585 NORTH SECOND STREET
MINNEAPOLIS 11, MINNESOTA

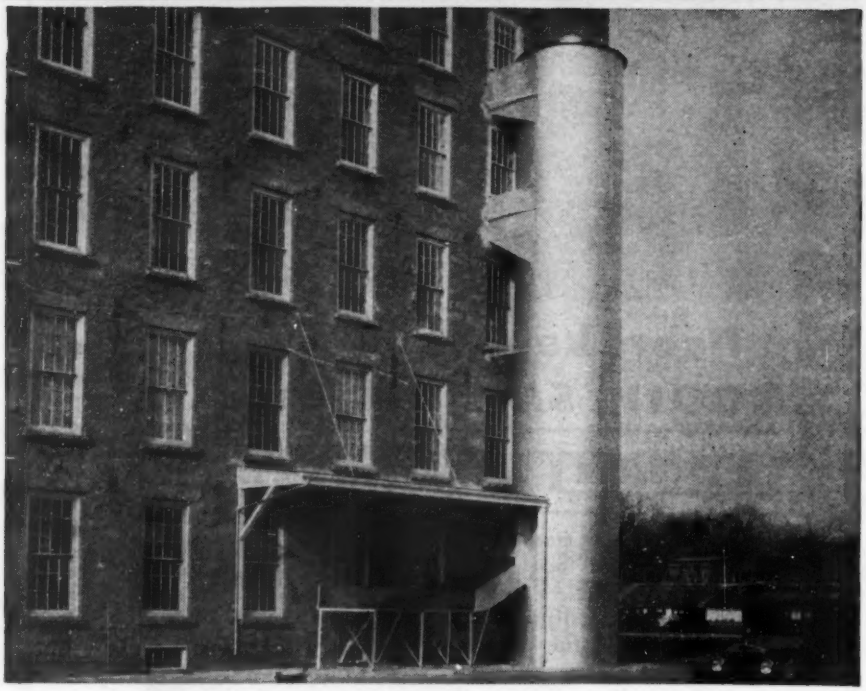
The way to finer floors
TENNANT
Floor Maintenance System
ESTABLISHED 1870
THERE IS A TENNANT MAN IN YOUR VICINITY!

THE TENNANT SYSTEM ENDS SCRUBBING and can be used throughout your mill

Mathews

SPIRAL CHUTES

Engineered to serve Production



Sheet Metal Spirals are ideal for lowering bales, bags, and packaged materials from upper to lower levels quickly and without damage. They can accommodate practically any number of floors and can be arranged with intermediate receive and discharge stations, as required. Spirals can be installed outside the building, as illustrated above, or inside the building. They take up very little floor space and are frequently installed in existing shafts or wells. Intake and outlet points are fully protected by fire doors which are controlled by fusible links. There is a Mathews Engineer operating in your vicinity. Ask him about spiral chutes, and the many other types of Mathews Conveyers which are engineered to serve production. Write or wire today.

MATHEWS CONVEYER COMPANY
ELLWOOD CITY, PENNSYLVANIA
SAN FRANCISCO, CAL. • PORT HOPE, ONT.
ENGINEERING OFFICES IN PRINCIPAL CITIES

J. B. Poteet, formerly with Dundee Mills, Griffin, Ga., has joined National Ring Traveler Company as sales representative in the Alabama-Georgia territory. His headquarters are in Griffin, Ga. Mr. Poteet will be associated with H. B. Askew, who will continue to represent the company in this territory.

Raybestos Manhattan, Inc., has announced the addition of two vice-presidents and a director. Those promoted are: John H. Matthews, vice-president in charge of the Manhattan Rubber Division, Passaic, N. J.; O. H. Cilley, assistant general manager of the U. S. Asbestos Division, Manheim, Pa., was made a vice-president; and A. F. Heinsohn, general manager of General Asbestos and Rubber Division, North Charleston, S. C., was placed on the board of directors.

Under a newly adopted regional set-up for the field organization of the Allis-Chalmers general machinery division, the following are now designated as district managers: In the New England region, A. B. Frost, New Haven, Conn., and R. H. Porterfield, Providence, R. I. In the Southeast region, J. J. Greagan, Birmingham, Ala.; William Parker, Charlotte, N. C.; J. W. Roberts, Chattanooga, Tenn.; G. H. Hoffman, Knoxville, Tenn.; A. R. Knauss, Memphis, Tenn.; Joseph Bronaugh, Miami, Fla.; R. F. Muller, New Orleans, La., and A. D. Robertson, Tampa, Fla.

Al S. Roebuck, former representative for Carborundum Co. at Shelby, N. C., is now associated with Ideal Machine Shops, Bessemer City, traveling North and South Carolina.

The Cameron Machine Co., Brooklyn, N. Y., manufacturers of slitting and roll winding machines, has started construction on a $400,000 plant expansion. The new plant is to be a two-story brick and steel building of modern design, with up-to-date facilities for materials handling.

Robert L. Richards has been appointed assistant general manager of the rayon department of the Du Pont Company. A series of other changes in that department include: Willis Shackelford, manager of the acetate division, will succeed Mr. Richards as an assistant manager of the department. Dr. G. W. Filson, assistant manager of the rayon division, succeeds Mr. Shackelford, as manager of the acetate division. George E. McClellan, director of production of the rayon division, succeeds Dr. Filson.

Two Famous

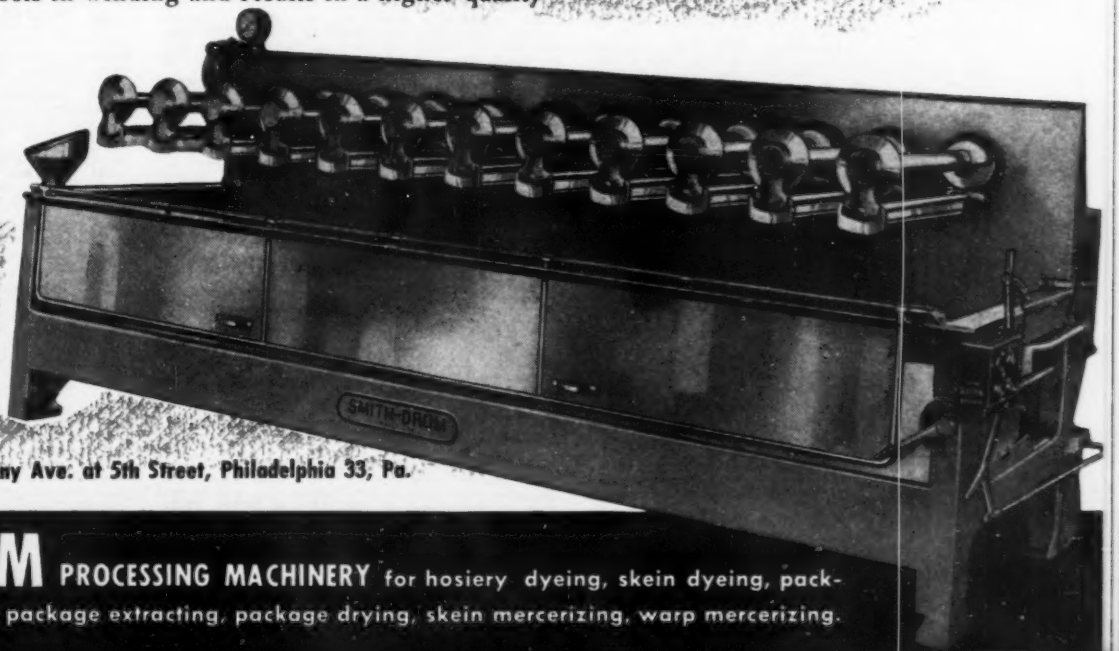
SMITH-DRUM

Smith-Drum Hosiery Dyeing Machine

This famous machine has reduced operating and maintenance costs to a bare minimum in most of the larger mills in the United States and Canada. Many of these machines have been in daily operation for 25 years and longer. This dependability is largely responsible for the fact that nine out of every ten pairs of hosiery made in this country are dyed in Smith-Drum machines. Remember this record of performance when you consider the purchase of new equipment.

Smith-Drum Skein Dyeing Machine

This is the machine that has revolutionized skein dyeing by "moving the liquor instead of the yarn"! Elimination of snarling and breaking of yarn saves time, trouble and costs in winding and results in a higher quality finished fabric. Savings in dyestuffs, steam and water . . . lower labor costs . . . faster dyeing time . . . result in a 25% to 30% cut in dyeing costs. Larger batches and more of them per day increase production as much as 50%. Write for more complete information.



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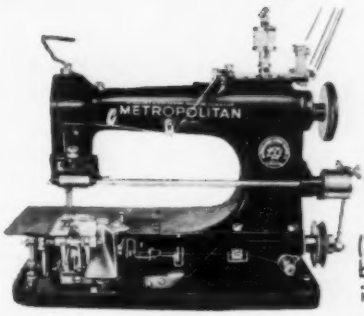

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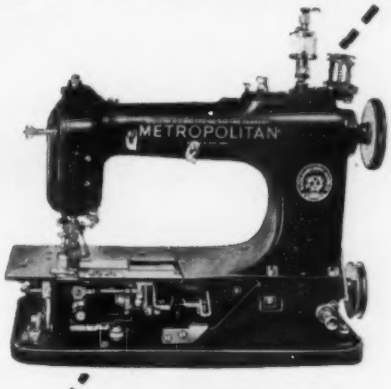

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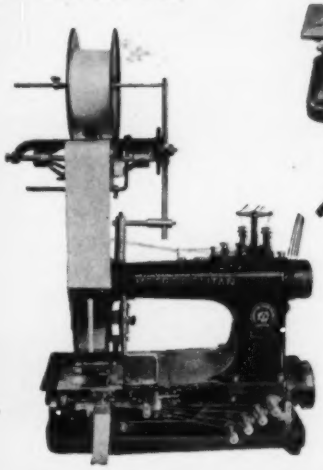

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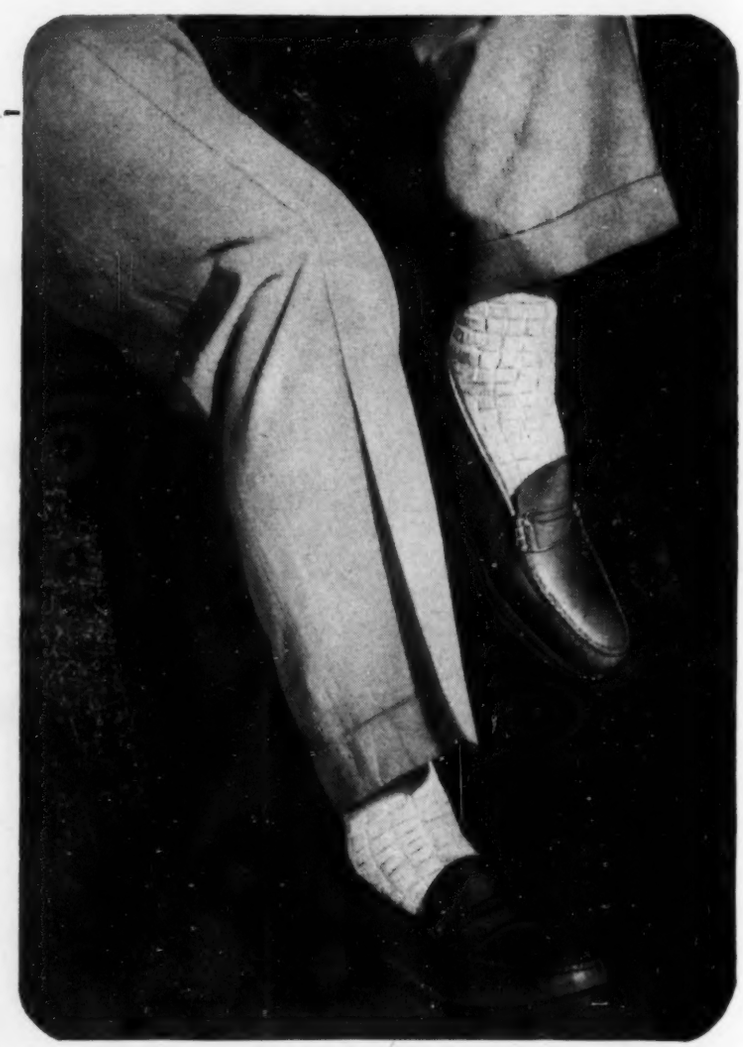

THE FIRST AMERICAN MADE KNITTING MACHINE to produce Links-and-Links patterning in hosiery was the Komet Links-and-Links Machine, produced by Scott and Williams in 1939. This machine, which knits an almost unlimited variety of rib patterns, designs and fancy stitches, including argyle block patterns, in top, leg and foot, is one of the most versatile machines ever built. It is an outstanding example of S&W development work, which has pioneered many "famous firsts" that build business for the circular knitting industry.

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The Model ES Machine

By TRACY T. TEAGUE

THE THREE previous articles in this series appeared in the December 1946, January 1947 and March issues. In this final article of the series, Mr. Teague discusses pattern designing on ES machines.

Part 4

PATTERN designing on ES machines is far more satisfactory than on any other machine known by the writer. The range of pattern possibilities has never been exhausted. The selection of needles is practically unlimited since a pattern jack of 18 butts can be placed underneath each and every needle if so desired, and these butts can be broken for various selections of any combination. In addition, three colors can be used, selective at will, for any stitch or group of stitches; and the color selection can be changed every course, if desired. Horizontal yarn changes may be made in two additional colors.

This machine is equipped to use almost any type of warp yarn, the 300 denier dyed acetate being that most commonly used. A twisted yarn of 80s/2 mercerized by 75 denier acetate gives a good two-tone effect. Quite a lot of this yarn is used too, particularly for pin and panel stripes. Also, 200 denier viscose is used for self-color panels and shadow stripes in connection with brighter colors of acetate. Nylon makes an excellent wrap yarn in the medium to lighter weights, due to its extra strength. Two-ply natural and dyed mercerized yarns are also used on the medium to heavier weight socks.

Pin Stripes

The 18-bobbin ES machine is very suitable for pin stripes in neat arrangements, knitting them in groups of twos or threes, evenly divided around the sock. To produce a different effect, each finger may wrap around separated needles (with one or two needles, or more, between them) giving the appearance of many more wrap yarns than the actual eighteen that are involved. Or, they can be used in combination with individual pin stripes making close groups of wrap stripes color-within-color, which in the proper color combinations gives very pleasing effects.

These individual stripes, made by the same fingers that are separated by one or more needles, are often used as a secondary color with a yarn of 80s/2 C. P. M. twisted with a 75 denier acetate. When dyed, the mercerized yarn will usually be the same color as the body, heel and toe, leaving the acetate natural, or white. This produces stripes with a so-called salt and pepper effect, while the brighter colors are usually used in the individual pin stripes and other portions of the pattern that are less predominating.

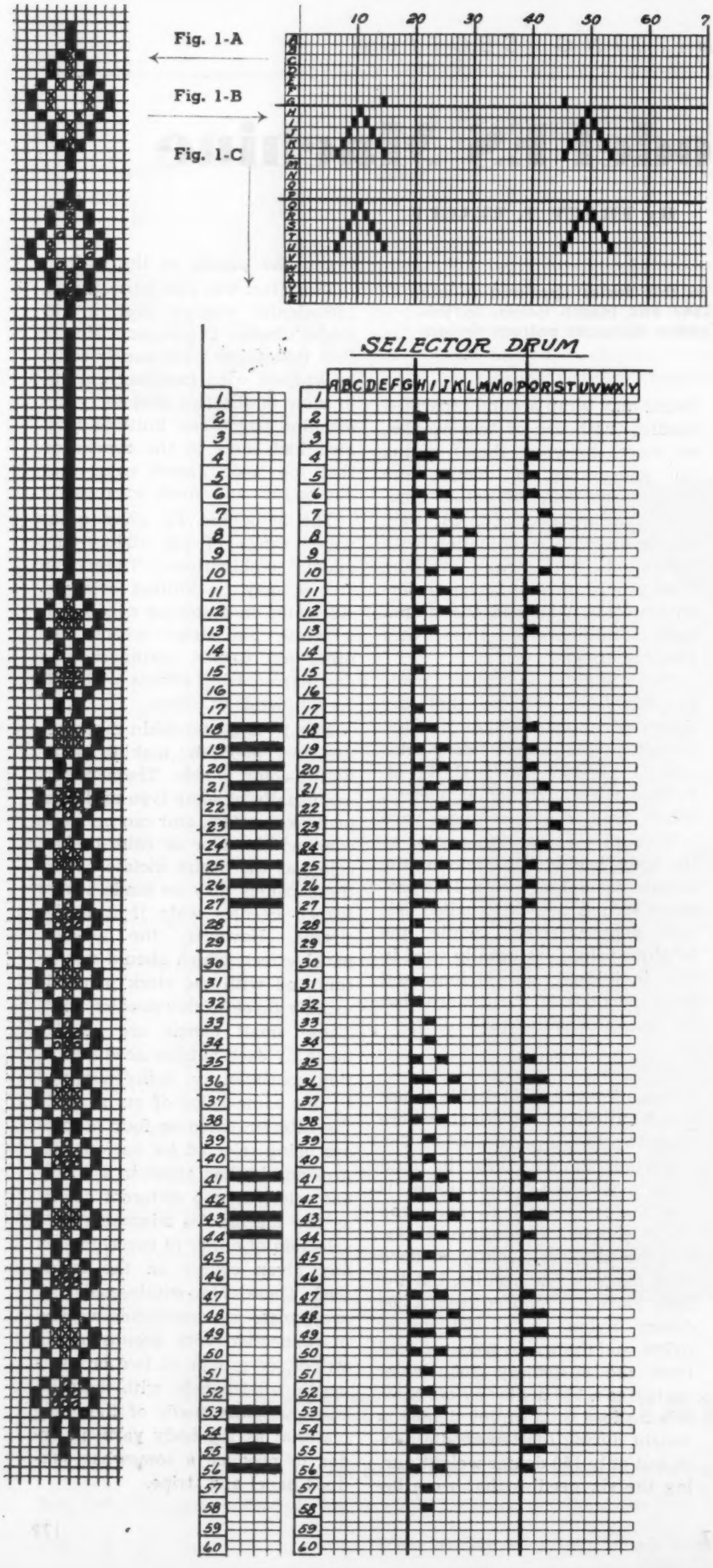
Panels

Sometimes, it is advisable to use panels. These panels are anywhere from two to ten needles wide. The important thing to bear in mind with a ten-needle wide panel is that the combined body and wrap yarns should not be too heavy. The writer just recently made a solid panel of ten needles, but the body yarn was reduced from a 200 denier nylon to a 150 denier nylon, and the wraps were reduced from the customary 300 denier acetate to a 150 denier nylon. Now, this made a total of 300 denier in weight during the ten needle panel, but only 150 denier weight during the six needles that were between the panels of the sock.

The effect was also tried using a 150 denier viscose over a 150 denier viscose. It was surprising to find that these wide panels could be knitted with excellent results, in view of the fact that for years machine fixers and knitting foremen had come to the conclusion that too wide panels were very bad to fuzz and break wrap yarns.

The 36-bobbin ES gives a far wider range of pin stripes and panel combinations. These pin stripes may be knitted color-beside-color on adjoining needles; or a white pin stripe within two other pin stripes, giving shading and harmonizing effects with different blends of colors.

The 18 and 36-bobbin machines are very good for making color-within-color panels. These panels are usually of some type of design or broken effect, and can be made color-within-color or color-beside-color, as the desire dictates. Also, these panels may be made ten to fifteen needles wide if it is desirable. However, the all-over panel effect, which should not be confused with the clock panel, is usually three to five needles wide. These small panels are usually made by each outside needle knitting continuously, being wrapped by the same color of yarn, while the interior three or four needles are being selected for various figures and broken effect in a different color, or two different colors, as the machine is adaptable to a selection of either of two colors on any given course on the inside feed. These color-within-color figure panels are sometimes worked in connection with groups of pin stripes, or groups of two or three needle solid panels, with the solid panels usually made of the same material as the body yarn, in order to produce a somewhat subdued panel and stripe.

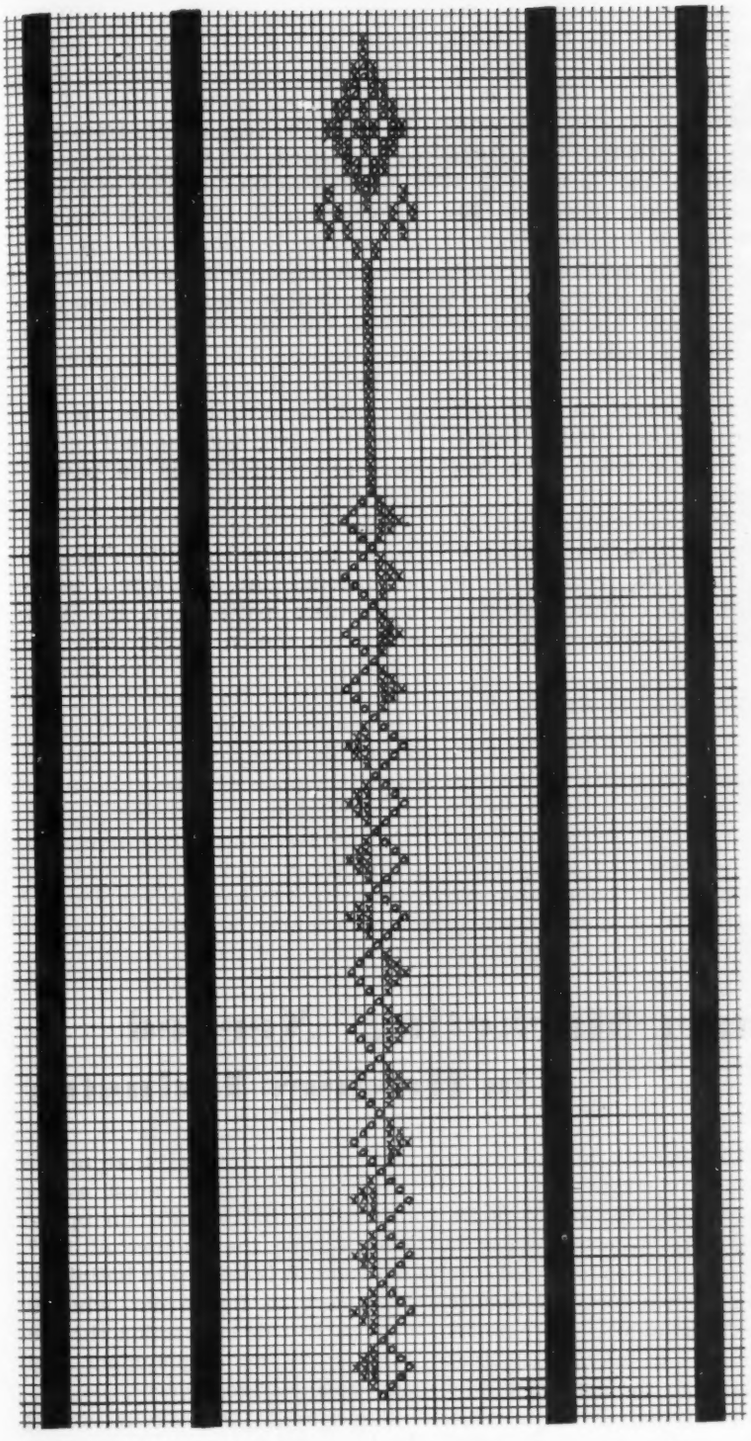


Panel clocks are very effective and are well applied to either an 18 or 36-bobbin machine, with a small 96-move trick drum, as the main requirements are only limited to the total of 18 steps in both pattern and inside color, which can nearly always be arranged to fit on this machine. The next requirement is that the repeat of the pattern be evenly divisible into ninety-six moves. These clock panels start four courses after the transfer on either rubber shorties or transferred half hose, and extend down 1½ inches past the corner of the gore. They are blocked out at this time by an auxiliary lever operated by the main drum working in connection with the "Z" butts that are purposely left on these pattern jacks. These panels will usually run from seven to eleven needles wide, leaving the corresponding nine to seven needles inside color. At times, either color can be selected for the entire selection during any individual course, it being necessary to bear in mind that it is not advisable to wrap around and knit too many needles side by side on any one course. Therefore, the selection is usually made so that the figure or design requires only three or four, and never more than five needles, to knit side by side on any one course, particularly when using 300 denier resist dyed acetate, as this is a very heavy yarn to be added into the stitch in addition to the regular body yarn and double sole.

But, with a little precaution in selective knitting, clock panels may be knit ten or fifteen needles wide, using various types of wrap yarns, with satisfying results. At the same time these clock panels are being knit with two or three colors, additional pin stripes, or groups of pin stripes, or two or three needle panels can be placed at intervals around the remaining part of the sock. The pattern possibilities, therefore, are endless

192-Move Trick Drum

Now, the 18 or 36-bobbin ES machine with a 192-move trick drum is well equipped to make clock panels of many descriptions, as the trick drum is large enough to cover the entire clock from the



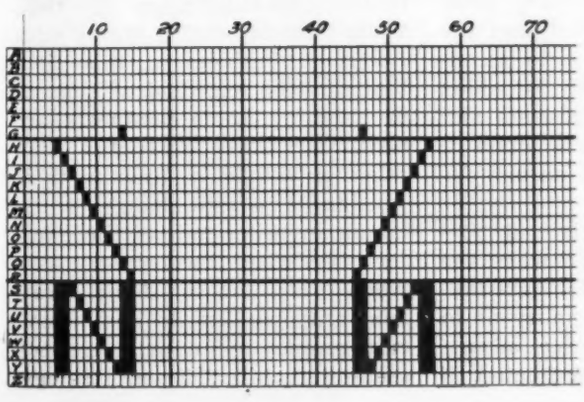


Fig. 2-A

Fig. 2-B

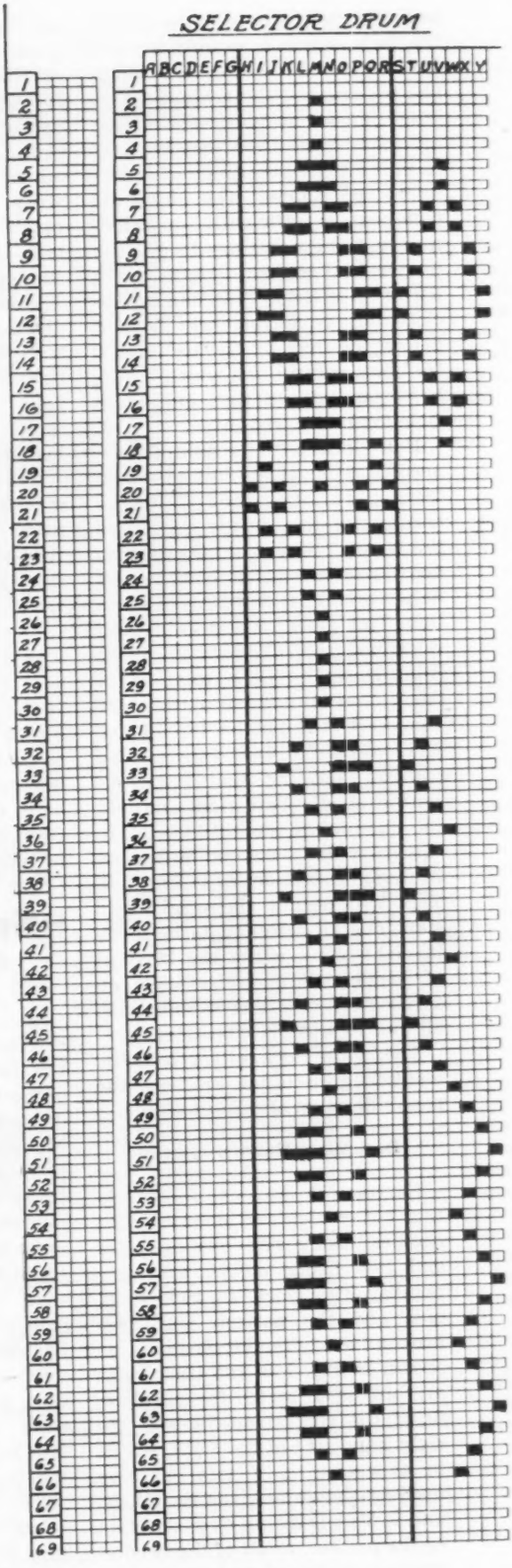


Fig. 2-C

beginning of the head to the end of the fork, which is usually around 185 moves. Providing the clock has a stem and the trick drum is idled for about two lengths, the 192-move trick drum may be used to knit almost any range of clocks up to 208 courses. The idling attachment is efficiently operated, it only being necessary to put the proper kind of chain lengths in the leg of the chain. One side of the clock fork is conveniently stopped before the heel by the use of the "G" butt control, for which a butt has been left on that individual jack for this purpose.

If a clock is to be knit fifteen needles wide at its widest point, using the first and fifteenth needles for the outside color, and the second through the fourteenth needles for the inside color, it can be put on the 18-step pattern selection. This gives 15 needles overall selection and 13 needles inside color selection, or a total of 28 steps. Now, this wide pattern can very easily be put on the 18-step jacks, providing it is a twin-sided pattern, meaning that from the central needle, both right and left, the figure has identical steps. In this case, the jacks can be broken in pyramid fashion, as in Fig. 1-B. This will permit the original 15 steps overall selection to be made in eight steps, while the 13 steps of inside color can be made on seven steps. This leaves one overall and two inside color steps.

The wide clock effect is being mentioned in order to show the possibilities on the ES machine.

Designing Narrow Clocks

Narrow clocks, as shown in Fig. 1-A, which are made on nine needles, using one outside color and two inside colors, are very popular. This clock is a twin-sided one, and the pattern jacks are broken in pyramid fashion, as shown in Fig. 1-B. the trick jacks are broken to match the pyramid, using the central needle and the right hand side of the clock, which in this case is a total of five needles, shown on lines H, I, J, K, and L. This is the all-over selection of the pattern, as all of the needles that are expected to knit have to be selected whether or not they be outside or inside color. The inside colors are re-selected on the lower nine steps of the trick drum, as shown on lines Q, R, and S. Having two inside colors, it is necessary to step the front selector cam; and medium butt jacks, which control the medium butt wrap fingers, are placed in the upper portion of the trick drum to take care of the secondary color, as steps 18 to 27 show (Fig. 1-C). The other spaces not marked indicate full butt jacks, which control the low butt jack fingers, carrying a different color of yarn from the medium butt fingers. Thus, a clock is made using two inside colors.

Often times, patterns are designed off center for either color or pattern effects. If the color is not twin-sided, the knitting effect is the same as though the pattern were off center.

Designing Medium Width Clocks

The medium width design in Fig. 2-A shows an eleven needle clock that has an even head but the stem, or body, of the clock is both off-sided in color and design. Therefore, it is necessary to break the cylinder pattern jacks into a diagonal slice, as will be noted in Fig. 2-B. One will notice that there are 11 continuous butts in the upper group, ranging from H to R. The seven butts from S to Y are used for the inside color, broken in a like manner as above. Thus, using all 18 steps, it becomes necessary to block out the two outside needles in each panel by leaving all the butts on from S to Y, so at any time these four needles would be made to come up at the outside feed only. This being a clock pattern, it too has the "G" butt to block out one-half of the fork at the heel, as in the pattern Fig. 1-A.

When it becomes necessary to break the cylinder pattern jacks in a diagonal line, one would break the entire pattern on the trick drum, as shown in Fig. 2-C. The 11 steps from H to R cover the entire width of the clock head, and the corresponding S to Y butts cover that portion of the pattern that is supposed to be knit on the front feed, or inside color.

These two pattern examples only cover the main varieties of clocks. However, the basic principles and approach may be applied to almost all clocks and panels.

"Smart Marketing" Needed in Hosiery Industry

Nearly everybody in this country habitually wears some kind of hosiery. Nevertheless, it is indicated, supply of certain types of hosiery already has reached the point where an industry authority finds it worthwhile to counsel manufacturers to make their lines more salable to the general public through re-styling. It is asserted that this applies to every price category. It is conceded that the hosiery field was first to reconvert after the war. It is added that, so far, hosiery makers and their distributors have done a fair job, but not good enough for the time to come.

The industry, it is claimed, now is coming into a period when the new lines are shown for next fall. A middle-of-the-road policy as to added values and price adjustments appears to be indicated. It is taken for granted that manufacturers of hosiery must assure themselves of a profit on operations during the balance of 1947. As usual, it is left up to individual producers to figure out what to charge. In this connection the dictum is: "Keep employment high and business steady."

Reaction to this advice among hosiery manufacturers is that, while there is nothing wrong with American business in this field that can't be remedied with proper handling, some producers are necessarily more restricted than others as to quickly adjusting their lines to fit in with changes in demand. In general, it is conceded, for many years the industry as a whole has filled the demand satisfactorily and made commensurate profits, but each emergency seems to require different strategy.

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* Neophil, the Nylon Seaming and Looping Thread for Nylon Full-Fashioned Hosiery, made by the Premier Thread Co., Pawtucket, R. I.

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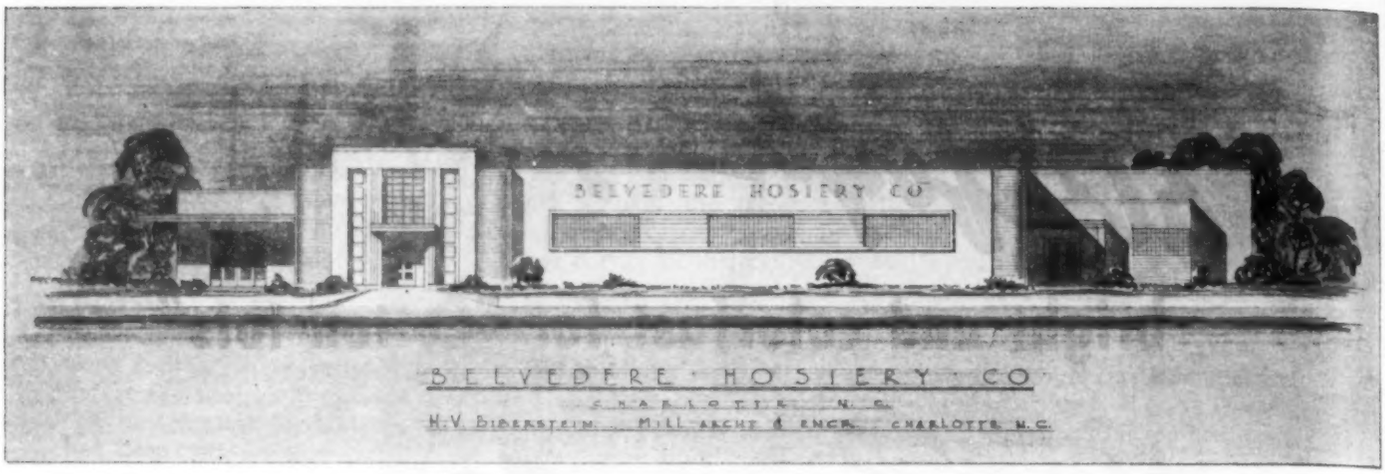

Today's Full-Fashioned Hosiery Mill

By H. V. BIBERSTEIN
Biberstein & Bowles
Architects & Engineers

THE AMERICAN girl of today demands beautiful and ultra sheer hosiery requiring construction of fine gauge and yarn counts ranging from 15 to 30 denier.

In order that the public might purchase this hosiery at a reasonable price, it is necessary that the cost of producing it be held within a fair range. This means that the product must be manufactured on modern equipment under modern conditions.

Modern Machines

Many years ago the short, full-fashioned machine was developed for making flat fashioned goods. This machine has today evolved into the single-unit fine gauge machine of 30 and 32 sections, 53 feet long, built to operate at high speeds.

These modern full-fashioned machines are very sensitive and require even temperature over their entire length. When using nylon yarn experience indicates that it is necessary to maintain the humidity at 50% relative and the temperature at 80°F, dry bulb.

Air Conditioning

The use of refrigerated air conditioning has been found to be very helpful when supply ducts and outlets are properly arranged and the equipment is of the central station type.

When full-fashioned knitting machinery is housed in a building having both walls and roof properly insulated and the insulation protected with the right vapor barriers, it has been found that outside summer heat gains can be held to a minimum. Further, in winter, wall condensation can be entirely eliminated, leaving the walls dry and the paint finish in good condition.

Lighting

Windows have been omitted entirely in many modern full-fashioned plants. With today's efficient lighting equipment, the effect is practically the same as daylight from a psychological standpoint. Employees are more content with this better lighting, especially since it is always uniform.

This means that proper lighting equipment should be used and that such equipment should be installed in the manner proven by experience to be most satisfactory. Generally, it has been found that strip lighting, placed at right angles to the knitters' alleys or parallel to and directly above the machines, gives very satisfactory results. This is governed, of course, by local conditions and the arrangement of the air conditioning ducts.

Efficient lighting with air conditioning providing temperatures of from 78-84 degrees, even in the hottest and most humid weather, makes for ideal working conditions, resulting in not only increased production but a decrease in the number of seconds made.

Construction Details

To provide these pleasant working conditions, it is important that the roof and wall insulation be of proper thickness and that it be properly installed to prevent the insulation from absorbing the humidity. It is especially important that, where parapet walls are used, flashing and counter-flashing be of such design that there will be no condensation at this point. Where the building is under construction, it is advisable to see that sufficient relief damper openings are provided to allow enough light and ventilation so that the building can dry out as quickly as possible.

It is recommended that the floors be constructed of reinforced concrete slabs with inlaid maple alleys, and that the cement portion should be carefully leveled and properly finished to prevent dust settlement and cracking.

In laying out the knitting room, it is recommended that columns be spaced so as to permit the installation of four machines per bay. Col-

(*Continued on page* 189)

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Mother was a great little manager. She didn't have much to work on, but she always had the ready cash to buy the things the family needed.

Her system was very simple. She didn't keep any books. She just had eight milk bottles on a shelf in the kitchen.

Each bottle was a bank—a depository for funds for a specific purpose: (1) Food; (2) Building and Loan; (3) Fuel and Light; (4) Clothing; (5) Emergencies; (6) Charity; (7) Insurance; (8) Savings.

Every Saturday evening, after supper, Father would open his pay envelope and he and Mother would divide the money —giving to each Fund its proper share.

There was nothing original in the idea. The thing that made Mother's system work was that she and Father never *cheated* — never *robbed* one Fund to pay another.

•

A Manufacturer was going over his Financial Statement. "We've got a lot of money in that Reserve for Depreciation," said he, "Where is it?"

"It's in the business," said the Auditor.

"That's not where it belongs," said the Manufacturer.

"A Reserve for Depreciation belongs in *reserve*, immediately available for the purchase of New Machinery . . . Let's get this business back on the old Milk Bottle System and keep it there."

•

An advertisement on "Good Housekeeping in Business," published by the makers of Reading Full-Fashioned Knitting Machines.

TEXTILE MACHINE WORKS
READING, PENNA.

Festive Fashion . . . There's excitement in sheer, flawlessly knit full-fashioned stockings. Such perfection is always achieved with the best needles. The TMW "Fixture Drawn"* process, which holds needles straight and true, is your assurance of superior needle performance. Finer quality fabrics. Greater profits. Let us put your needle bars in shape for faster, more accurate, more profitable knitting.

* Reg. U. S. Pat. Off.

TEXTILE MACHINE WORKS • READING, PA.

(*Continued from page* 184)

umns should be off-set from the maple alleys so that with only a 20-inch back alley it is still possible to have 14 inches between the side of the columns and the edge of the machine to allow for passage.

Many of the full-fashioned mills ship their products in the grey; therefore, space is required only for yarn storage, looping, seaming, machine shop and machine parts.

Toilets and rest rooms, properly located so as to be accessible to all employees, should be finished with tile walls and floors. Toilet stalls should be made of rust-resisting materials.

Some mills provide smoking rooms which the employees are permitted to use periodically. Cafeteria service and lunchrooms operated for benefit of the employees have become very popular recently and are being used more every day. In addition, many mills have installed loudspeakers to provide music and general news service.

Many mills that preboard nylon have found that the preboarding room should be ventilated to provide a one-minute minimum air change, or it might even be partially supplied with conditioned air.

Dye House

In those mills that do finishing, it is recommended that the dye room be located so as to fit into the general flow of production with grey goods storage located next to the dye house so that goods can enter this department from one end and be delivered from the opposite end.

For the average plant two rows of dye machines have been found to be the most satisfactory arrangement. With this arrangement the dye house can be built approximately 28 feet wide with machines located on each side in a pit six inches deep, having covered trenches for receiving hot and cold waste liquors; the hot water is diverted through a heat reclaimer where a considerable portion of the heat can be removed from liquor and transmitted to hot water storage tank.

Dye machines can be supplied with steam, hot and cold water, and also electric service, from nested pipes symmetrically hung from brackets fastened on rear walls. Water and steam supply can be controlled with quick-opening, lever-type valves and the steam also automatically controlled for correct liquor temperature.

The dye house floor should be graded and well constructed to prevent undue wear. Walls should be finished of glazed structural tile, eliminating necessity for painting. Dye room, dye laboratory, and office should be located at the end next to boarding room, and should be equipped with glass partitions to permit good supervision.

Two-minute air change for summer and vapor absorption units for winter operation will keep dye house properly ventilated and clear of fog vapor in winter.

The boarding room should be arranged to allow a straight flow from dye house to pairing room. This room also should have good ventilation to allow the operatives to work efficiently. This room, as well as the finishing department, should have hardwood floors, finished and maintained by regular application of floor dressing.

The finishing department should also be air conditioned, or the building laid out to take advantage of good ventilation. Arrangement should be such that flat or boxed goods storage is located to best advantage, accessible to pairers and also to folding and boxing. It is well to have this department connected with the general office for supervision and convenience in handling orders.

To summarize, today's plant is one of modern machine operation under perfectly controlled conditions for light and air, located in a pleasant, well-arranged building of proper construction, having conveniences which will result in better working conditions for the employees and greater production of high quality goods.

Cost Structure Slow to Yield

Frequent expressions by Government officials of alarm over sustained high level of general manufacturing costs have led to repeated examination of the manufacturers' position, both as to essential elements of production and distribution expense and margin of net profits (after taxes), necessary to insure financial stability of the average manufacturing concern later on. As a result, some leaders have commented on the serious degree to which a floor has been placed under major items of manufacturing costs, by actions either taken directly by Government itself, or by pressure groups with encouragement from Washington authorities.

Fundamentally, it is contended by some, the cost-price spiral flows directly from Government policy in terms of inflation of bank credit and money supply; wage increases forced by Government as a matter of political expediency; the long-continued policy of Government support of agricultural prices; and heavy financial commitments made by this country for assistance of distressed populations abroad. It is pointed out that, so far, there seems to be no definite program in sight whereby real economy in Government can be started, nor has any Government official come forward with a scheme for eliminating any of the Government-fostered abuses mentioned above.

From this angle, therefore, it has often looked as if Government spokesmen unjustifiably tried to make industry the "whipping boy" for awkward results that are the harvest of a long period of Washington dictation to business men. In one quarter it is urged that approximately one-half the total increase in living costs is due to advances in meats and dairy products, which are not areas of industrially - administered prices.

38th Knitting Arts Show

THE 38TH KNITTING Arts Exhibition showed little effects of war postponement. Conversion of both mill men and exhibitors was rapid, and the show was off to a fine start within the first hour after the doors were opened.

Although this exhibition was the first since before the war, initial-day attendance broke all records, with visitors coming from all sections of the United States and from several foreign countries.

There was plenty to see, both in heavy machinery and in auxiliary supplies (See advance report of Show, TEXTILE INDUSTRIES, April, 1947).

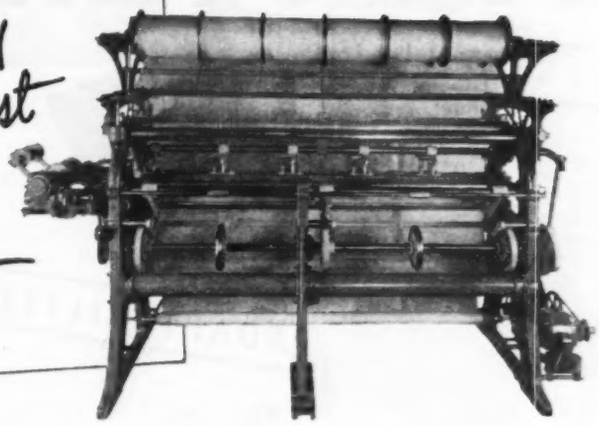
The adverse market conditions could well have dampened enthusiasm, but mill men came to see what was being offered, and their interest in all types of equipment and supplies ran high—to them a dark spot in the market, high labor costs, and any other adverse conditions were problems that in part could be solved by modern equipment and a study and fulfillment of consumer needs.

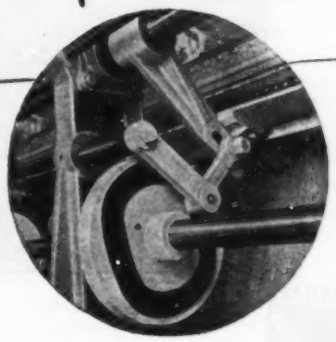
Photos herewith of the show were made on opening day by Parke L. Schaffer of Proctor & Schwartz, Inc., Philadelphia, Pa.

The 39th Knitting Arts Exhibition will be held in Atlantic City, the spring of 1949.

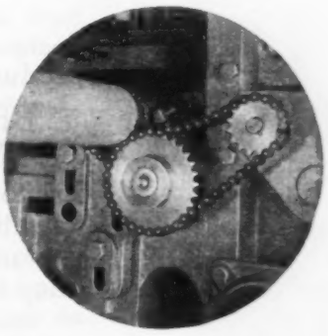
As noted, a review of equipment and supplies shown at the Knitting Show appeared in the special issue, April, of this magazine.

Three of the reasons why the Kidde Knitter is the last word in Raschel-type warp-knitting machines —





Needle Bar Suspension. A new type of suspension at ends and center of the needle bar contributes to high speeds and simplicity of pattern changes. Needle bar—pivoted on arms and swinging in an arc—is moved up and down by movement of cam followers. Needle bar stroke can be adjusted to suit pattern without changing cams. Much higher speeds are possible because conventional cylinders, pistons and weights are eliminated.



Take-Up Adjustment. The take-up roller of the *Kidde* Knitter may be adjusted vertically as a unit. Take-up motion is adjustable in increments of .002 inch by means of ratchet wheels and interchangeable sprockets. Normal range of take-up is from .009 to .100 inch. By merely changing sprockets, range may be extended still further.

Drum Motion. An outstanding feature of the *Kidde* Knitter is the eccentric drive for the drum motion. Drive speeds up the drum motion so that guide bars are shifted quickly when needle bar is at top dwell position. Eccentric drive is adjustable, so that acceleration of drum motion can be adapted to pattern requirements. This drive permits higher operating speeds than are possible with either index drive or worm feed drive.

These are just three of the many unusual design features incorporated in the *Kidde* Knitter—features that contribute to wide versatility, high sustained operating speeds, exceptional accessibility.

Write for descriptive literature—or better still, see for yourself what the *Kidde* Knitter can do. A machine is in operation at our Bloomfield plant—we'll be glad to arrange a demonstration. Just write for an appointment.

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Laurel Emulsions—Hydrocop and 3B Softener—condition and soften cotton yarns, mercerized, dyed or bleached. Used by hundreds of mills for over 25 years to assure proper regain, speed up twist, produce even-running yarns and clearer stitch. Laurel Hydrocop and 3B Softener will not turn rancid or discolor yarn on standing. Easily applied over roller trough or cone winders, quilling frames, or twisters. If you want softer, better knitting yarns to help you meet specifications, send for a trial order of these veteran emulsions, Laurel Hydrocop and 3B Softener today.

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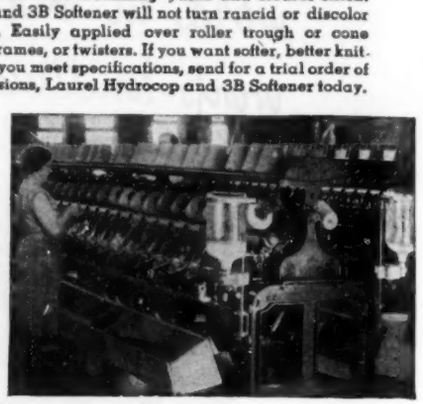

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GOLDEN *Anniversary*

19 A·M 47

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AN EYE ON THE

KNITTING MILLS

Georgia Hosiery Mills, Blakely, Ga., plan to install an additional 25 new machines at an early date, whereby furnishing employment to 40 more employees.

Spruce Pine (N. C.) Hosiery Mills, hosiery and work clothes, have been organized by F. B. Fortner and others, capital stock being $100,000.

Aircraft Hosiery Mill, Corinth, Miss., will erect an addition to the mill at a cost of approximately $85,000.

Red Fox Hosiery Mill, Newton, N. C., men's half hose and infants' anklets, is completing construction of a new brick building.

Dogwood Hosiery Co., Thomasville, N. C., hosiery, knit goods, etc., has recently been organized with Marie Wright, Richard and Archie Primm as incorporators.

Diamond Knitting Mills, Newton, N. C., have recently purchased a six-acre tract in West Newton and plans are being made for the erection of a brick building for expanding operations.

The Braeburn Knitting Mills have recently been incorporated by James M. Feuerstein, Los Angeles, Cal., with a capital stock of no stated par value.

Cosmopolitan Knit-Wear Processing, Inc., Los Angeles, Cal., has been incorporated by Irving Klein and associates with a capital of $25,000.

Louis E. Heilbronner, chairman of the board, observes 65 years of continuous association with Holeproof Hosiery Co., Milwaukee, Wis., this month.

Pickett Hosiery Mills, Burlington, N. C., celebrated the 20th Anniversary recently, awarding 42 employees service pins, seven of whom started with the concern 20 years ago. Eighteen employees received pins denoting five years of service, while five received 10-year pins, and 12 received 15-year pins.

United Rayon Mfg. Co., Knitting Division, Old Fort, N. C., is completing construction of a one-story brick and reinforced concrete building, completely air-conditioned. Manufacture of a synthetic knitted fabric has been started on a limited scale, but full operation is not expected for several months, due to a thorough training program that all employees are required to undergo.

Lawr-Rae Hosiery Co., Reading, Pa., has recently been established by Lawrence S. Terrey, Shillington, Pa.

William J. Stavarski and Richard A. Purcell, both of Reading, Pa., have recently organized the Art Knit Hosiery Co. in Reading.

Malvern Finance & Sales Co., hosiery manufacturer in West Asheville, N. C., has recently been incorporated with a capital stock of 1,000 shares, no par value.

A new concern in Marianna, Ark., The Travelers Mfg. Co., will begin operation sometime this month with Felix Hampton as manager. This plant will produce men's work socks, and plans to add dress socks later.

Fine Seam Hosiery Co., Reading, Pa., is scheduled to begin operations at an early date. Willy M. Vogler is sole owner.

George A. Wennell and Clair E. Bowman, of Reading, Pa., and Archie L. Hatt, Sinking Spring, Pa., have recently established the Fritztown Full Fashioned Hosiery Co., five miles southwest of Reading.

The recently organized, Helen (Ga.) Hosiery Mills, have begun construction of a one-story mill and will have the structure ready for occupancy at an early date. The company proposes to operate a dye house.

Chadis-Roth Knitwear Co., Boston, Mass., has been organized with a capital of $50,000, to operate a knitting mill for the manufacture of outerwear. Charles Chadis is president.

Clay V. Richardson, operating Clayson Knitting Co., Star, N. C., men's and boys' half-hose, is establishing a new branch mill at Badin, N. C., and proposes to have the plant ready at an early date. About 40 machines will be installed for initial operations.

Conover (N. C.) Knitting Co., men's half-hose, will occupy part of a one-story building now in course of construction. Increased capacity will be developed in the new unit. Warlong Glove Co., Conover, will take over the other section of the new structure.

Berbet Mills, Lexington, N. C., knitted cloths, etc., have begun an expansion program for additional space for processing and finishing departments. Plans are also underway for a three-story addition to the plant.

Hollar Hosiery Mills, Inc., Hickory, N. C., seamless hosiery, plan an early establishment of a branch mill at Yadkinville, N. C.

Wytheville (Va.) Knitting Mills, Inc., have plans for a one-story addition to the hosiery mill, to cost about $150,000, with equipment.

Glen Alpine (N. C.) Knitting Mill, men's half hose, was recently purchased by W. Sydney Yount, Newton, N. C., from M. O. Pitts and C. V. Lael for an estimated $70,000.

Monroe Mills, Inc., Monroeville, Ala., underwear for women, are completing a one-story addition, to be used as a dye house, and installation of equipment will begin soon.

E-Z Mills, Inc., Cartersville, Ga., children's knit underwear, plan an addition to the mill at an estimated cost of about $65,000, exclusive of equipment.

Bossong Hosiery Mills, Inc., Asheboro, N. C., women's full-fashioned hosiery, have begun erection of a one-story addition, reported to cost about $150,000, with equipment.

The recently organized Sanders Hosiery Mills, Inc., Burlington, N. C., have begun operations with a total of 34 knitting machines, specializing in men's half hose. Increased production, with an ultimate of about 150 machines, is proposed.

Chappell Hosiery Mill, Durham, N. C., has approved plans for a one-story addition, and erection will begin soon.

Bryan Hosiery Mill, Chattanooga, Tenn., plans installation of an air-conditioning system at the mill, with an estimated cost of about $40,000.

Knit Well Hosiery Mill, a new concern in Hickory, N. C., is owned by Dr. J. W. McKee and Jimmy Mauldin. G. O. Bunton has been employed as superintendent of the plant.

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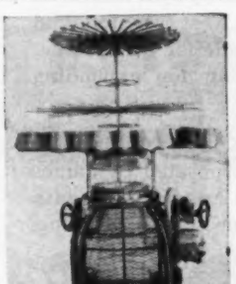

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Early Hose Sales Disappointing

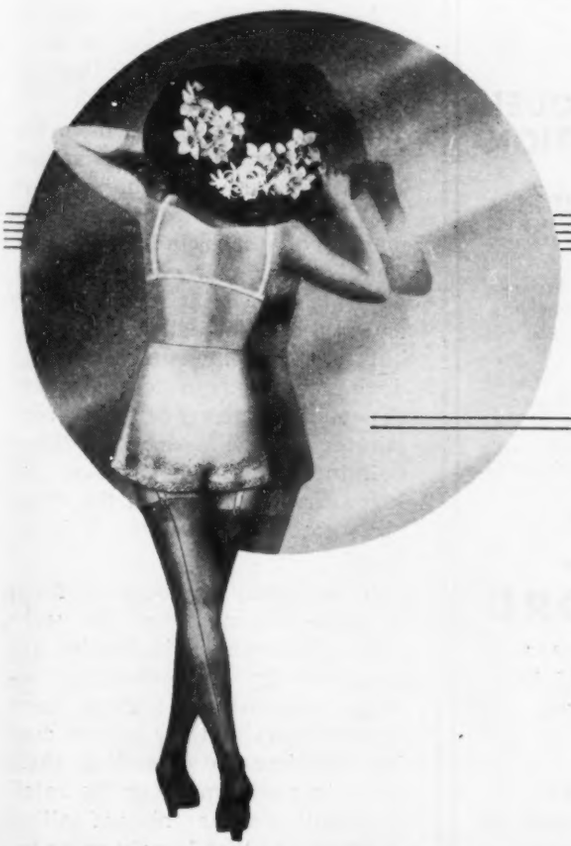
A season of price-reductions in some types of hosiery for women now seems likely, because retailers report sales of this item in Easter trade fell below their dollar-volume expectations. Immediate pricing adjustments, it is stated, will be followed by others unless the public soon responds to retailers' promotions. April allotments of nylon yarns were reduced, as noted, but while hosiery makers are concerned over this, it is claimed that the retailers have paid little attention to it. It is stated that retailers find inventories of nylon goods are now a bit on the high side. Some large retail outlets are reported to feel that they could get through next summer on the nylon stockings already ordered. In addition, a few chains lately were said to have balked at further acceptance of allotments.

Women are described as resisting popular brands of nylon hosiery because of alleged excessive retail prices. It is said that consumer objection becomes still more noticeable when unbranded goods are offered at prices which customers think are excessive for wearing qualities offered. Some retailers admit that conditions have so far changed, since ending of Government price controls, that they have no reliable measure of hosiery values. That is, they are now without a standard of comparison with prewar values. As quality has improved materially meanwhile, retailers have to set up a new standard for themselves and their clients.

Inventories assembled by retailers in the larger centers, it is said, were considerable; but it now appears as if the majority of consumers already had purchased a substantial wardrobe, having overbought and hoarded stockings during the time that this item was scarce. It remains for retailers to discover how far this condition will continue. Meanwhile they have been very cautious about adding to their second quarter inventories.

As to rayon stockings, demand has fallen off. This is a continuation of the trend reported before. Some large retail outlets still are devoting promotional space and expense to exploiting this merchandise. Others have progressively marked down their retail prices, and this applies also to seamless rayons. A number of wholesale and retail dealers complained that they had to order a lot of rayon hosiery in tie-in transactions whereby they could obtain nylons when the latter were scarce. As a result, they are trying to dispose of the rayons.

In some quarters it is cited that there is a difference of opinion among manufacturers as to whether nylon stockings have been over-supplied, or whether later a shortage of them may appear. It



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also has been reported that where some retailers claim their stocks are large and have moved slowly, the result may be attributable to faulty merchandising by the stores, especially in areas where economic conditions changed rapidly since January 1, therefore requiring more timely promotions.

Hosiery manufacturers appear to feel at present that for the balance of this quarter, the bulk of their production outlay is fixed, and where economies can be contrived, they will only slightly affect final manufacturing cost of standard-quality goods. Yarn deficiency is complained of by some mills, and all yarn is regarded as too high-priced; but it is stated by some observers that labor costs will remain high during 1947, and this is regarded as the most important element in cost of hosiery production.

A few stocking mills believe some types of hosiery have already been overproduced, and quality that was turned out since January 1 mostly was below acceptable standards for the prices asked. A movement is under way to install certain minimum standards on the basis of which most types of women's hosiery can be labelled.

Outlets Needed for Sub-Standard Goods

Knitwear disposal during 1947, as far as retail results are concerned, appears to indicate that the "productive economy" stressed during wartime and since then has now been replaced by a "distributive economy." Concerning manufacturers, trade observers say, it devolves on them to turn out the type of merchandise now preferred by the public and supply the goods to the ultimate disposers at prices that, at re-sale, will fit in with what the public is able to pay.

Thus far during the second quarter the majority of retailers have been sacrificing slowmoving merchandise to salvage what they can of their investment in such wares and to clear the way for fresh offerings that presumably will embrace better values for customers. It is to be noted also, the trade spokesmen add, that the public since January 1, 1947, has experienced a considerable letdown in earnings. High hourly rates in some industries, it is said, have put an end to overtime employment. A great many of the employed now are working fewer hours per week than a year ago, but find their necessary outlay for food, etc., has increased remarkably when compared with OPA controlled prices of last spring.

In the knitwear lines, as previously reported, the final 1946 quarter furnished manufacturers and distributors with a foretaste of consumer resistance against high prices asked for poor quality goods. This confronted the producers and their outlets with the problem of raising quality and keeping prices down, or raising quality and moving into the higher price ranges. During the first 1947 quarter, it now appears, too many knitwear sources chose to try to cater to the relatively small segment of the public that still wants quality regardless of price.

As a consequence of this, in part, a substantial total of knitwear was produced over the last several months, of which the quality could be said to have advanced as compared with wartime goods but not enough to warrant the prices asked, in the estimation of the retail customers. That is to say, many knitwear producers trimmed their prices a bit and raised their quality somewhat, but the combined result failed during the last quarter to satisfy the public's demands. This constitutes a basic reason for disappointing retail distribution of knitwear and nearly all the other "soft goods" retail items, it is alleged.

It frequently has been set forth in these columns that the technique of consumer distribution has progressively been changing, as large concerns right along have devoted part of their profits during wartime to extending their sway in peacetime over the retail distribution of a number of salient commodities that largely enter into the postwar scheme of consumer

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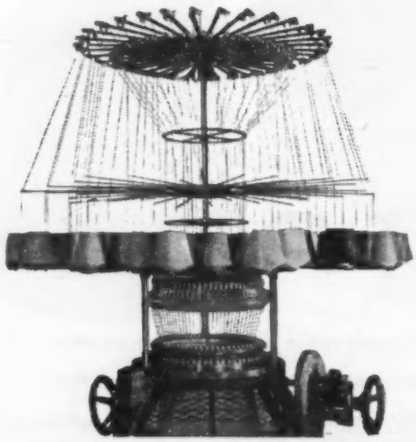

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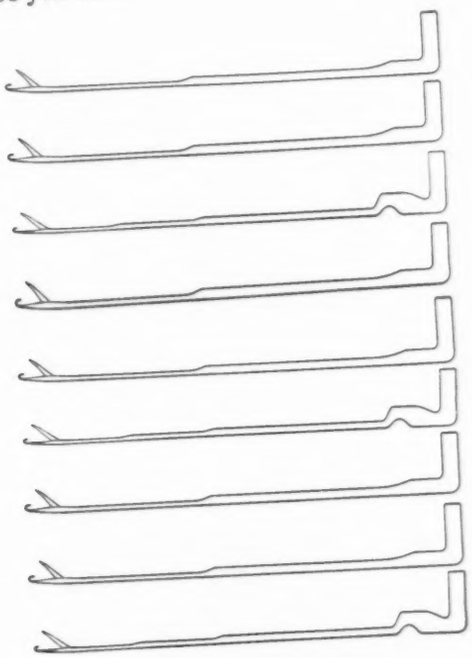

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buying. Knitwear, of course, is one of these commodities.

What has been recorded as to finished goods in the knitwear lines over the last several months, it is related by industry experts, must be regarded as likely to prevail in the future, because the general public now is described as very alert as to value comparisons. And the larger operators in the retailing field have a big advantage, because volume has an influence that cannot be underestimated in the present retail scheme, as it gives a substantial leverage on prices.

That is, according to this viewpoint, the public henceforth will be likely to seek more value for dollars spent for knitwear and eventually (after retail markdowns have been forced to the limit) the knitwear manufacturers will be called on to produce better goods at less cost.

Chain Units Get Knitwear Lists

Some of the largest of the country-wide chain organizations are reverting to their prewar practice of listing knitwear with their individual stores. Manufacturers whose products are included in such listings report they already have received numerous orders. In some quarters this is accepted as a good indication of the retail situation on a broad scale, as it shows the inventory status as to knitwear among chain store units at any given time. It also reveals the estimates of future sales, as figured by the chain unit managers, who are adept at gauging consumer demand in their individual territories.

A reverse angle to this development is cited by some industry observers. They point out that chain stores' revival of this practice is obviously intended by the central managements as a check on the practices followed by individual store managers, as to inventory control, etc. It is contended that some manufacturers and selling offices object to having to deal with numerous single units, when it would suit them better to sell merchandise to the central buying organizations of the chain outfits, since volume sales of this sort certainly afford the manufacturers more scope in planning their production.

Elsewhere it is regarded as being constructive because the majority in the industry, after their experiences with retailers and wholesalers during the last several months, concedes that merchandise distribution is going through an important period of adjustment, with the ultimate outcome a matter of considerable uncertainty. One phase of this is that the individual chain store units have their share of wartime accumulation to dispose of, and the listing technique clearly puts it up to each and every store manager in the chain to put himself in position to buy fresh goods.

Orders thus far taken in regular form, it is said, from such chain store listings, have more than usual significance for knitwear manufacturers. This is said to be noted especially with regard to sportswear. The percentage of favorable replies to first inquiries, it is stated, have been eminently satisfactory to the mills. There also has been a fair percentage of repeat orders from individual managers of chain units, according to this report.

Some of the national chains, it is said, have extended this listing practice to include fall merchandise, giving the unit managers authority to order merchandise several months ahead, within certain limitations. In some localities, it is stated, orders for fall shipments already have been placed, but in general, according to distributors of knitwear, the individual chain store managers are likely to wait until the last minute. Some manufacturers object to this, but others say they also labor under definite uncertainty as to the longer future of retail business.

It is cited that the unit chain store heads are in as good a position as any retailer to try to select in advance the type and price of merchandise that can be offered to the public, with fair chance of success, during late spring, the summer months and (in some cases) early next fall. Little doubt is expressed that knitwear business placed this way will pull through.

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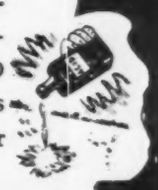

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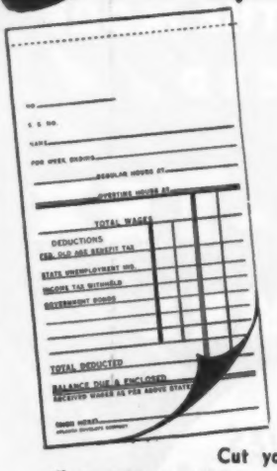

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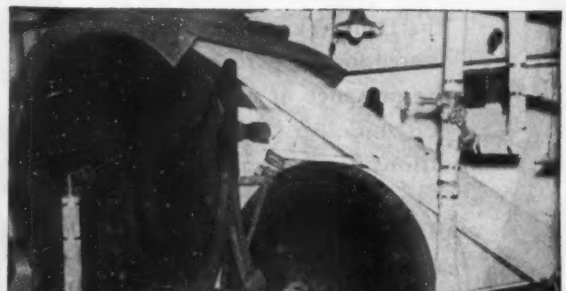

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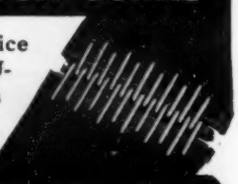

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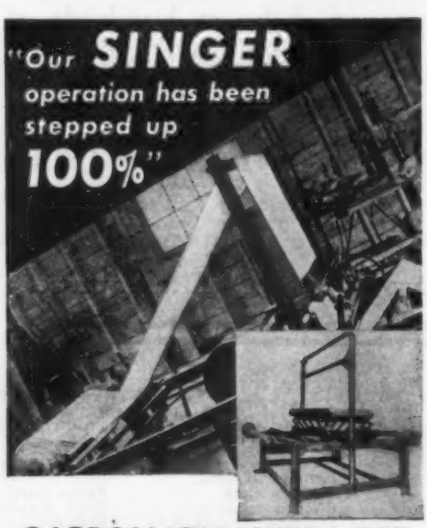

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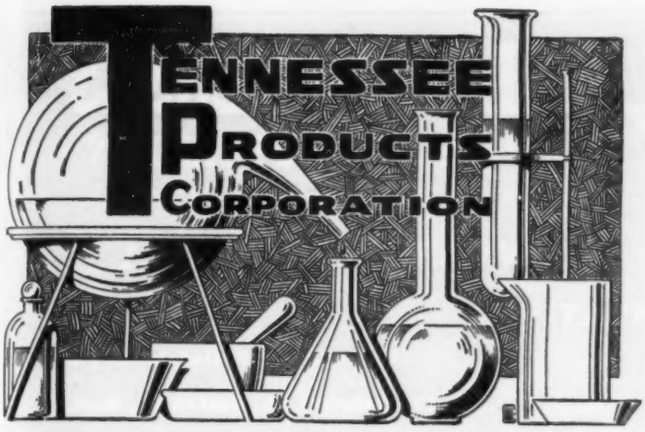

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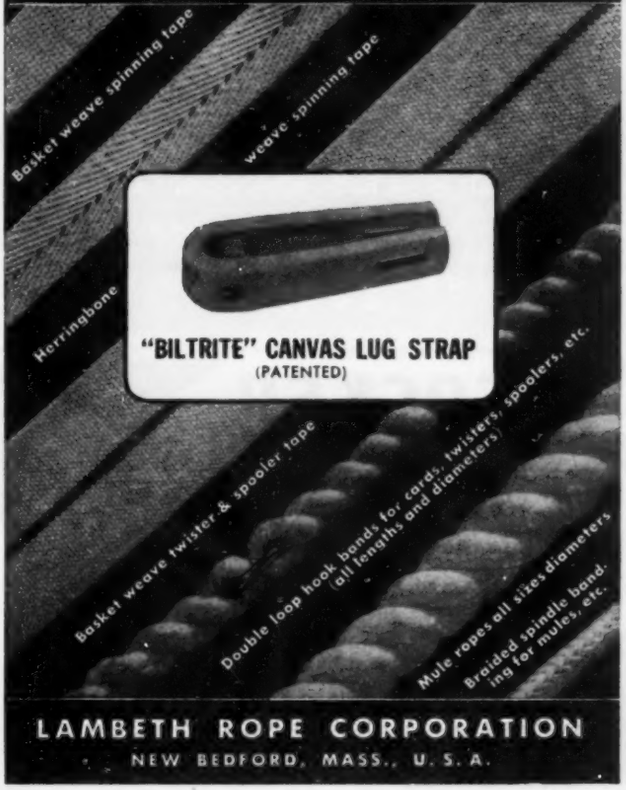
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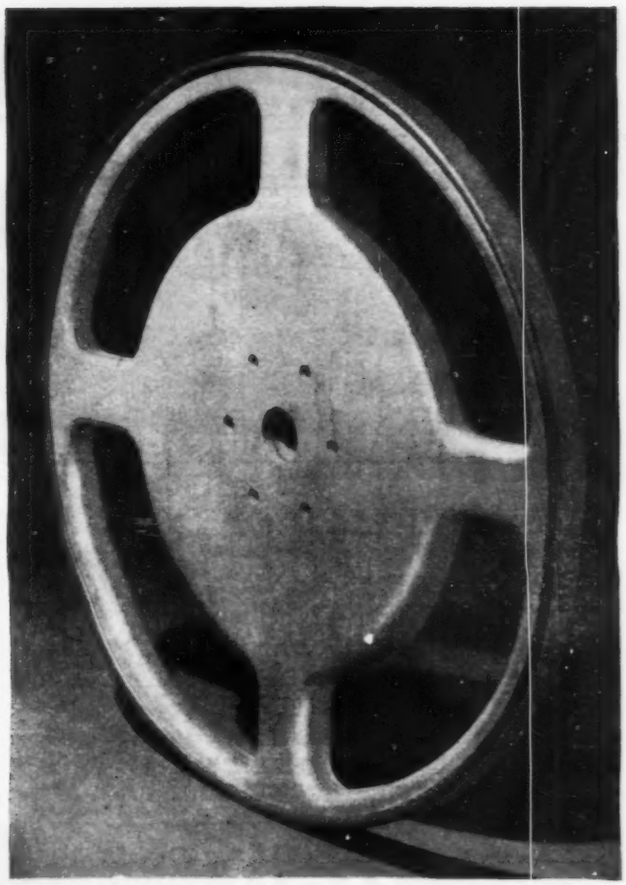

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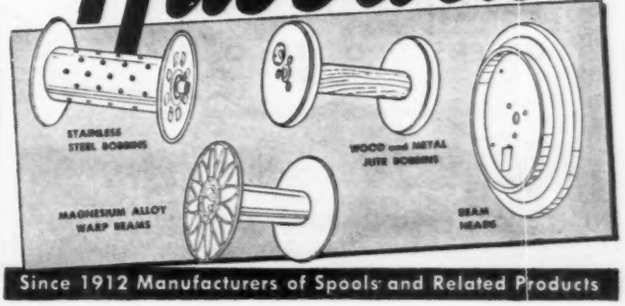

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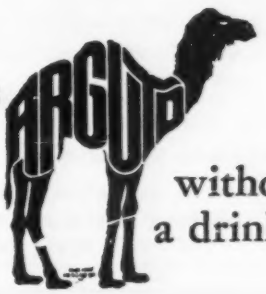
20 years  without a drink—

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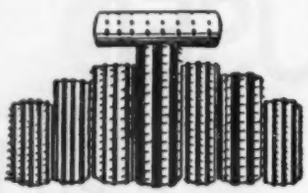

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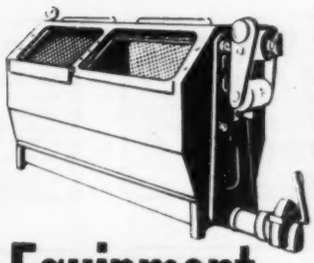

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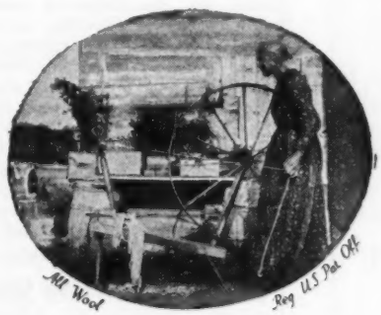

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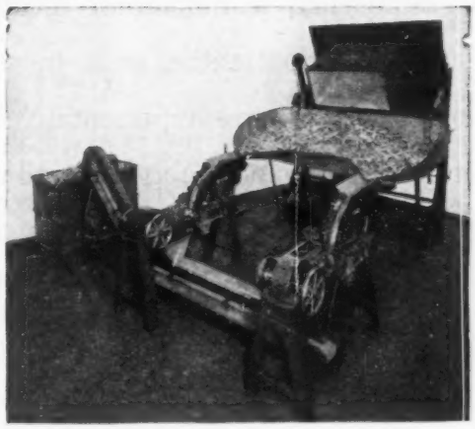

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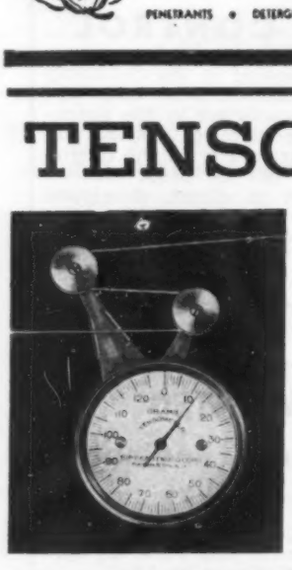

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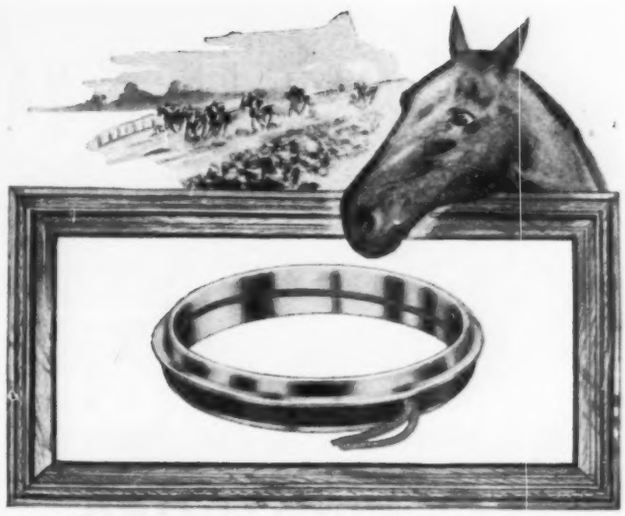

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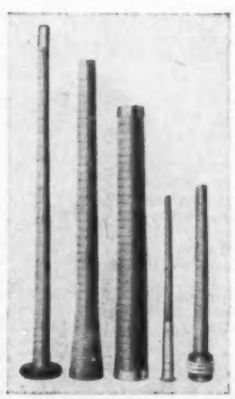

Thus the barrel is always concentric with the spindle, has perfect balance, and STAYS that way.

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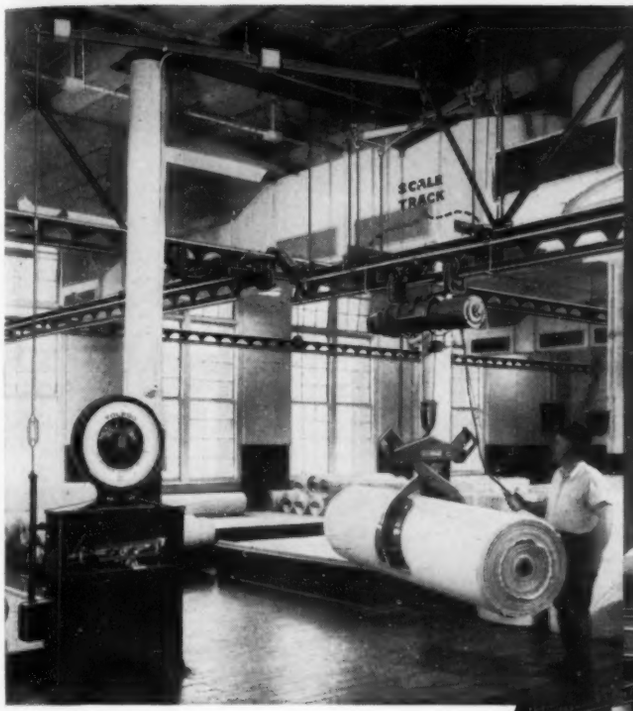

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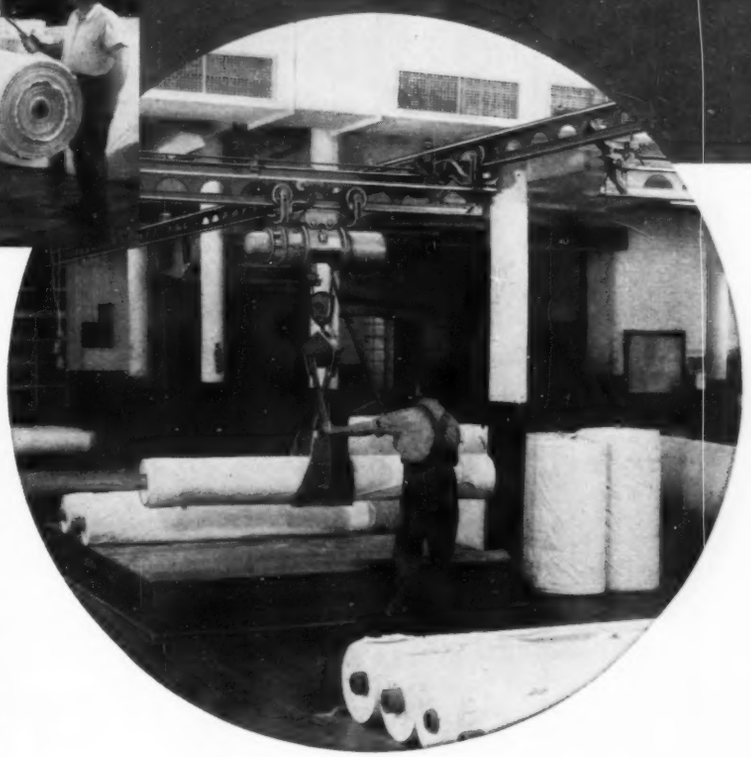

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